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General Scientific

PRACTICAL HINTS ON THE REMOVAL OF TONSILS AND ADENOIDS.*

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Edinburgh.

The removal of enlarged tonsils and adenoids has long been recognized as one of the most successful of surgical procedures. Yet one frequently encounters patients who continue to suffer from tonsilitis or from the well-known adenoid symptom complex, although they have been subjected to this operation on one or more occasions. Since there is no such thing as recurrence of those lymphoid enlargements after a single thorough removal, it follows that one can only attribute such cases to a faulty technique on the part of the operator. Let us therefore enumerate the various operations which have been devised, and discuss their respective merits.

Dealing firstly with the tonsils alone, there are four methods of removal in common use:—

1. The vulsellum and bistoury operation. This is clumsy and ineffective, and is applicable only in cases of projecting or pedunculated tonsils.
2. The use of some pattern of knife-and-fork guillotine, such as Matthieu's, an ingenious instrument, but one which always leaves a portion of the tonsil *in situ*.

The above two methods should now be regarded as obsolete.

3. The old guillotine operation; *i. e.*, the use of Mackenzie's guillotine or some modification of it, as originally employed; sometimes with the assistance of a vulsellum to drag the tonsil through the ring.
4. The new guillotine operation. This is the only certain means of removing the tonsil entire within its capsule, and is sometimes called "guillotine enucleation"; but as one often succeeded in "enucleating" whilst using the original method, the terms "new" and "old" appear more appropriate.

The new guillotine operation, introduced several years ago by Whillis and Pybus, is heartily approved by specialists, but it has received little attention at the hands of practitioners who, not having had the advantage of a practical demonstration, base their judgment on some complicated written description, and regard the innovation as a difficult and uncertain manœuvre. In reality, this new mode of using the guillotine is quite as simple as the old original method, and is infinitely more satisfactory.

For the sake of comparison, the two operations may be briefly described.

The Old Guillotine Operation.—The guillotine is firmly grasped in the right hand. The ring is then threaded over the tonsil, the lower surface of the shaft facing the side with which one proposes to deal.

Firm leverage is next exerted, so that the ring is pressed outwards in a lateral direction. Counter-pressure by the fore-finger of the left hand, just behind the angle of the jaw, assists in coaxing the tonsil into the ring; or the same thing may be accomplished by traction with a vulsellum, which is passed through the ring and withdrawn with the tonsil in its grasp.

The operation is then completed by driving home the blade of the guillotine with the right thumb.

The New Guillotine Operation.—The principle in this case is somewhat different. The guillotine, held in the usual fashion, is introduced like a tongue depressor. The ring is then applied so that the upper surface of the shaft (*i. e.*, the surface opposite the handle) lies towards the tonsil.

The point of the instrument is then dug well in behind the tonsil, which is at the same time levered forwards by bringing the handle over towards the opposite angle of the mouth.

If one has been successful in thus digging the tonsil out of its bed, a swelling will now be seen on the palate just above and external to the anterior pillar, the appearance, in fact, closely resembling that of a peritonsillar abscess. The swelling corresponds to the upper pole of the tonsil covered by the tissues of the palate, and by pressing firmly upon it with the left thumb or forefinger one can force the entire tonsil through the ring of the guillotine and hold it there while the blade is pushed home with the right thumb.

Before withdrawing the instrument, it is turned so

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that the handle points upwards, and the tonsil is thus removed lying on the lower surface of the blade.

The main points may be summarized as follows:—

1. Holding the guillotine with its upper surface towards the tonsil, thread the ring over the tonsil, and press the point of the instrument well in behind the tonsil.
2. Lever the tonsil forward so as to produce a swelling on the palate.
3. Press upon this swelling with the finger or thumb, thus forcing the tonsil through the ring of the guillotine.
4. Having driven home the blade, withdraw the instrument with its lower surface, carrying the tonsil, uppermost.

The second (left) tonsil is removed in precisely the same manner, the only alteration being in the position of the operator. When removing the right tonsil, he stands on the right-hand side of the patient, while for the left, he stands at the head of the table.

The following additional axioms may prove useful to beginners:—

Firstly—Be sure that the lower pole of the tonsil is already through the ring before pressing the upper pole through.

Secondly—Remove the first (right) tonsil rapidly, before blood has had time to collect and obscure the view of the second one.

Thirdly—Take care that the uvula is not included in the grasp of the guillotine. It is unintentionally removed more often than might be supposed.

Lastly—Never attempt this operation in adults. Enucleation by dissection with scissors and snare is then the operation of choice.

If the above details are closely followed the operation should present no special difficulty. I have practised it in over 200 cases, and regard it as greatly superior to any of the older methods. A tonsil, which requires removal at all, surely requires complete removal, and only by the new guillotine operation can this be accomplished with any degree of certainty.

Removal of Adenoids.—Having dealt with the tonsils, one next proceeds to remove the coexisting adenoids, and here it may be mentioned that there is no need to subject a child, suffering from enlarged tonsils, to the discomfort of a digital examination of the nasopharynx prior to operation, for if the tonsils are enlarged the presence of adenoids may confidently be assumed.

I have referred to the frequency with which adenoids are incompletely removed. This failure is in my opinion the fault of the instruments rather than of the operator. One cannot hope to clear from the nasopharynx an oblong mass of tissue by using a blunt curette with a pear-shaped fenestra.

The adenoid curette should have a square or oblong fenestra, should be fitted with a suitable hooked guard, and should be very sharp. One of the best patterns is St. Clair Thomson's.

The instrument should be grasped like a dagger, introduced behind the palate, carried upwards until felt to impinge upon the posterior border of the vomer, and then swept firmly downwards over the posterior wall of the nasopharynx.

The operation is then completed by planing off any remaining tags or ridges with an unguarded curette.

Position of the Patient.—In this matter there is considerable difference of opinion. Personally, I have abandoned the plan of allowing the head to dangle over the end of the table. The patient should lie on his back, with a small pillow or sandbag under the nape of the neck, the head being thus slightly extended, and this position should be maintained throughout the operation.

Instruments Required.—A good self-retaining mouth gag, such as Doyen's.

Tonsil guillotines. Numerous patterns are on the market, and the selection is largely a matter of individual taste. I prefer Whillis's instrument, but have used Ballinger and Heat's with equally satisfactory results. The essential features are that the shaft should be strong and inflexible, the ring of medium size (¾-inch), and the handle set at an obtuse angle or right angle to the shaft.

Adenoid curettes. These have already been described.

Choice of an Anesthetic.—Unless the operator be fairly dexterous, C.E. mixture had better be employed; though after some experience has been acquired, it will be found that ethyl chloride gives a sufficiently long anesthesia. The actual operation may usually be completed within 40 seconds, and the patient need not be on the table for longer than three or four minutes in the average case.

After-Treatment.—The child should rest in bed for a day. Sucking of ice will relieve local discomfort, and a peroxide spray will usually check any bleeding. Little or no food should be given, and parents or nurses must be warned that the child may vomit blood, as a good deal is frequently swallowed during the operation. The administration of an aperient next morning is generally advisable. The patient may gradually return to ordinary diet, and may be allowed out of doors within a few days.

Guinea-Worm Disease.

G. G. Davis and J. J. Hilton, surgeons of the Chicago Medical Unit, Etaples, France (*Journal A. M. A.*), publish the account of a case of guinea-worm disease observed in a British soldier, who had spent five years in India, and had no sign of the disease apparently until six weeks before he was injured by a barb wire, in both feet The wounds, it seemed, were insignificant at the time and healed almost completely with simple painting with iodine. Before three weeks, however, the left foot became tender and sore and finally suppurated. The regimental surgeon opened the wound and applied wet dressings. It partially healed and then the foot became swollen and tender and was again opened. The patient says that coincidently with the primary injury he noticed a white raised area on the flexor surface of the left forearm. A comrade who had served with him in India broke the vesicle and removed a worm by carefully rolling it around a lead pencil. It was two feet long, and the wound closed, leaving a small pigmented scar. The patient denies any venereal history and only suffered from malaria in India. He does not remember any childhood diseases, but suffered from a severe attack of tonsillitis in 1911. The family history is negative. The wounds showed irregularly shaped ulcers near the ankle on the left foot and a small abrasion surrounded by an inflamed zone on the right. The inguinal glands were enlarged and tender, especially on the left side. There was marked chronic pharyngitis and an acne eruption on the chest and back. A number of worms were extracted, at least one *in toto* and others in fragments. The authors hold that it is reasonable to assume that the disease was imported from India, but the patient's claim that it dated from an injury by barbed wire and the occurrence of the worm at the site of the injury are worthy of note. Whether it was really the sole cause of the trouble or whether it was attracted to the site of the injury is of course a question. The case is of interest from this point of view, as well as from its rarity in temperate climates.

HEAD NOISES (TINNITUS AURIUM).

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The constant association of head noises with deafness demands attention. One frequently has patients come to him who are perfectly content to let their deafness remain as it is provided they can be given assurance that the head noises will disappear.

The causative factors of this condition are the same as those for deafness. One may be deaf without having noises in the head but one seldom has noises in the head without being deaf. Patients often believe that the noises interfere with their hearing. This is not strictly true because even when the noises have been relieved the deafness will still remain.

I wish it were possible for me to state some definite cure for such a condition. It is unfortunate that each case presents a different problem and that it must be studied thoroughly in order to find out the different etiological factors. In many instances the cause is a general one, due to the reduced vitality of the individual. I know for instance of one case where the noises were due to an increase in blood pressure. In In another instance, in an elderly individual, head noises were due to an increase in blood pressure. many cases, particularly in young women, severe amenia reduces the body vitality to such an extent that the noises are very distressing.

Of course numerous local cases can be found, the chief among which is the altered circulation within the middle ear which results from a chronic catarrhal process, which not only affects the middle ear itself but goes to the internal ear, labyrinth, and nerve. Just as nerves of sensation transmit pain when their circulation is interferred with or an inflammatory condition is present, so the auditory nerve and its extension into the cochlea will interpret its pathological condition in the form of noise. It is unfortunate that we cannot scientifically state just where the trouble is, but we do know that if the cause of the condition is attacked there is less tendency for the condition to remain.

In the majority of cases head noises are due indirectly to pathological conditions in the nose and throat extending up the eustachian tube into the middle ear. These causes have frequently been present for years before any manifestation of trouble arises. One therefore has to be guarded in the hope that he gives out to his patients for it is only by the utmost perseverance and only by attacking the problem from various directions that one can accomplish anything worth while.

In closing I feel it my duty to caution all patients suffering from head noises from consulting the irresponsible physician who states in the newspaper that by his long experience he is able to cure all cases. *All cases cannot be cured* and any one who openly makes definite assertions, hopes merely to get into his office a number of gullible subjects who are willing to go to any length to discover some new thing that will give them relief. Such a man does not expect to keep his patients long—only long enough to extract a few dollars from his pocket instead of extracting a few noises from his head.

11 West 81st Street.

Malignant tumors of the testicles are comparatively uncommon, and clinicians have become more and more impressed with the great malignancy of such tumors. Out of 1,080 cases of malignant disease admitted to St. Thomas' Hospital, London, in only six was the testicle involved.

AMPUTATION OF THE CERVIX.*

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Our first case to-day is a woman 43 years of age with a bad bilateral laceration of the cervix with erosions and a second degree laceration of the perineum. Dr. Pfeiffer will proceed with this case. The cervix requires amputation, which he will do after the method of Sturmdorf. Sturmdorf cuffs the cervix, making a good vaginal flap of mucous membrane all the way round, then does a conical amputation of the cervical tissue.

The particular advantages of this operation are, first, the result accomplished by the method of introducing the sutures is that the vaginal mucous membrane is brought into absolute contact with the mucous membrane of the stump of the cervix. This makes for smoothness of work and leaves a vault which is perfectly smooth with no irregularities, as so often occurs in the ordinary method of cervical amputation.

The method of introducing the sutures is as follows: A silkworm gut suture on a sharp needle is introduced just at the margin of the anterior flap at its centre in a direction transverse to the vagina. While being at the margin, it is also submucous. Then a Sturmdorf needle, which is a modification of the old Peasley needle, is carried through the base of the mucous flap about one inch from the median line, through the cervical tissue, having its exit just within the cervical stump. Into this is threaded one end of the silkworm gut suture, the same procedure is carried out the same distance from the median line on the other side, the needle is re-threaded and pulling up on the stump brings the two mucous membranes in contact, the same procedure being carried out posteriorly, and a beautiful external os is made. Usually the two sutures are sufficient, but sometimes it is necessary to use one or two plain gut sutures laterally. The silkworm gut sutures are left in ten days. They are left long for ease in taking them out.

The Sturmdorf perineum is a flap operation with isolation of the levator ani muscles more complete than in most other procedures, and bringing the muscles together in front of the rectocele, the flap is sewn together laterally with plain gut dropped back of the embankment made by the muscle suture and from three to five silkworm gut sutures are used as skin sutures, they also including the deeper tissues. It is quick, complete and effective.

Our second case is a woman 37 years of age, a multipara, with a second degree prolapse of the uterus and a large cystocele and rectocele. The operation chosen for this case is the Emmett-Baldwin which has been completely described in my previous clinics.

Our third case is that of a young woman who was confined with her first baby four weeks ago at one of the Institutions in the city, leaving there on the tenth day. So far as we can learn, she had a perfectly normal labor, but after going home she had to take to her bed on account of fever, chills and pain in the lower abdomen. As physical findings we have all the symptoms of a subligamentous distention, which are a lifting of the uterus upward and forward by the mass behind it. The particular mass in this case fills not only the pos-

* Gynecological Clinic held at Kings County Hospital, June 4, 1915.

terior culdesac, but both lateral fornices, and its lower margin can be felt where it has worked its way down between the rectum and the vagina at a distance of two inches from the introitus.

This case brings up the interesting subject of puerperal infection. We all know that the cause of puerperal infection is the introduction of one or more of the germs of infection into wounds of the birth canal during labor or the puerperium. Anything which lowers the resistance of the patient at the time, as hemorrhage, trauma or prolonged labor, acts a predisposing cause. The channels with the infection follows are the lymphatics and the veins. When it follows the lymphatics we get parametritic exudate. When it follows the veins we get thrombo-phlebitis, bacteremia and pyemia. They are all classified under the one term of septicemia.

The general symptoms of a puerperal infection are these:—

Two or three days after labor the patient will have a chill and rise of temperature from 102 to 106 with all the symptoms accompanying a temperature, which are a dry tongue and dry skin. The further symptoms ofa puerperal infection depend entirely upon the local or general infection. In case of a general infection, the chills and fever continue with periods of remission until either recovery or a localization. The local lesions produce a symptomatology which is peculiar to the part infected. Such symptoms can be easily figured out, if the local lesion is taken under consideration. Of course, in all suspected cases of puerperal infection you should exclude pneumonia, malarial infections, meningitis, etc. The special lesions would be included under the headings of an endometritis, metritis, parametritis, salpingitis, ovaritis, pelvic peritonitis, diffuse peritonitis, phlegmonous alba dolens, colpitis, cystitis and a ureteropyelitis.

The most effective treatment of post-partum sepsis is prophylactic, but if it occurs, then the treatment might be summed up as supporting and stimulating. In our clinic we are very fond of treating these cases by judicious neglect, using the exaggerated Fowler position for pelvic drainage and only using surgical measures when we have localized foci of pus, as we have in this case.

Dr. Marney will proceed with the posterior vaginal section, making a large opening in the culdesac, and after striking the pus, which you now see, the culdesac will be packed with a large amount of iodoform gauze, paying particular attention to having the opening well packed. This gauze is left in for ten days without any disturbance, the reason for this being that we wish to secure a drainage opening at the vault which will not close quickly after the removal of the gauze. After leaving it in for ten days we have a good sized drainage opening which will not close up until such time as the cavity above has had an opportunity of collapsing and taking care of itself without any further interference.

The status of vaccines in post-partum infection is unsettled. It is unsettled even in my own mind, but the majority of opinions are against the use of vaccines, especially the stock vaccines, those who favor vaccines feeling that the autogenous vaccines are the only type that give any help. In our clinic, cases do well under the Fowler position as suggested, open air and sunlight, care of the local lesions at the proper time and without the use of vaccines. There is one type of case, the straight bacteremias with the streptococcus found floating in the blood current, that very very seldom recover under any treatment. Another serious type are those cases where we have a thrombo-phlebitis with usually a resulting pyemia from loosening of the septic emboli, which deposits elsewhere, with a long-continued irregular temperature (which is characterized by great irregularity in these cases) and the exhaustion incumbent upon such a condition.

375 Grand Avenue.

CHOLECYSTITIS; CHOLELITHIASIS.

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Cholecystitis.

History: Patient, male, forty-one years old, enters the hospital because of right sided abdominal pain. Three weeks ago the patient was attacked with abdominal pain, vomiting and fever. The pain finally localized on the right side just below the border of the ribs. There was also right sided muscular rigidity.

Previous to this attack he suffered prolonged periods of constipation and flatulence which was relieved only by daily enemata.

Examination: There is marked right-sided rigidity, exquisite tenderness over the region of the gall-bladder, and a suspicion of tumefaction. Temperature 100 deg., pulse 90, respiration 24.

Comment: It was at first difficult for the attending physician to determine whether the disease was in the gall-bladder or appendix. The findings at the present time are unmistakable, as the symptoms are all localized in the gall-bladder region; besides you will note that these symptoms have extended over a period of three weeks, a period of time wholly incompatible with such rapid processes as perforation, intestinal obstruction, or acute pancreatitis.

This patient has been treated by rest in bed, cold applications to the abdomen, and liquid diet. Most mild cases of cholecystitis will subside in a few days under this treatment. The fact that the symptoms persist leads us to suspect that suppuration has occurred and drainage of the gall-bladder is demanded.

Operation: We shall make the usual right rectus incision over the gall-bladder area. Upon opening the peritoneum we discover an inflammatory mass of adhesions which upon investigation proves to be a much distended gall-bladder protected by adherent omentum. This tells the story—the infection within the gall-bladder has extended to its peritoneal surface and the omentum ever on guard, has already attached itself to minimize the dangers of a threatened perforation. Detaching the omentum, we isolate the gall-bladder with protective sponges and proceed to empty the gall-bladder of its contents. This is best done with an aspirating needle and syringe.

You can see in the syringe that the fluid withdrawn is pus. This is a true *empyema of the gall-bladder*. The gall-bladder having been emptied we now make an opening large enough to insert a good size rubber drainage tube which is anchored in place with a purse-string suture. The protective sponges are now withdrawn, a couple of gauze drains inserted and the wound closed.

Comment: The pathology of the gall-tract cannot be appreciated unless its anatomy is well understood. We have long taught that the gall-bladder is the "vermiform appendix" of the gall-tract. Note in Fig I. its relation to the hepatic and common ducts. It is obvious that it is not in any way an essential part of the gall-tract. Pints of bile flow through the hepatic and common ducts in twenty-four hours yet the gall-bladder holds only a few ounces of bile.

Its removal in no way impairs the function of the

gall-tract. Its absence has no deleterious effect upon the health of the individual.

It is a blind pouch with defective drainage—having only one opening, the cystic duct.

Its analogy to the vermiform appendix is not only anatomically but pathologically significant; for when inflammation attacks the mucosa, the swelling closes the entrance of the cystic duct and converts the gall-bladder into a closed cavity and an inflammatory focus of great pathological possibilities. If suppuration occurs as in the case reported we get an empyema, or the process may progress to perforation or gangrene.

Sometimes the inflammation spreads to the surrounding peritoneal stuctures and there results a *pericholecystitis* and even if the inflammation subsides we have as a result of the pericholecystitis *adhesions* which bind

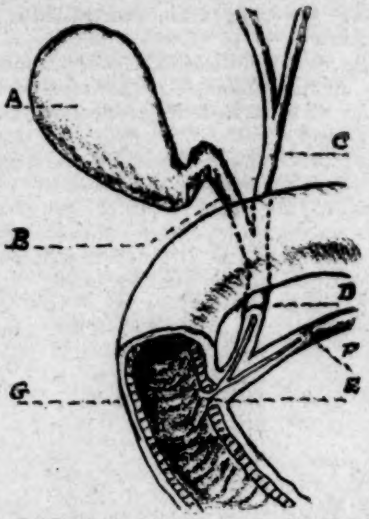

Fig. I.—The Gall-Bladder and Bile Ducts. A—Gall-Bladder. B—Cystic Duct. C—Hepatic Duct. D—Common Duct. E—Ampulla of Vater. F—Pancreatic Duct. G—Duodenum.

the gall-bladder to the surrounding structures and cause a kinking of the bile ducts which may result in strictures which prevent drainage of the gall-bladder.

It will be noted that this patient presented no jaundice. *Inflammation of the gall-tract without jaundice always points to the gall-bladder.* Jaundice occurs only from obstruction of the hepatic or common ducts.

Remember—Jaundice is not a symptom of gall-bladder disease, it is a symptom of gall-duct disease.

Cholelithiasis.

History: Patient, female, thirty-five years old, married, enters hospital because of several attacks of acute abdominal pain and distress after meals.

She states that she has suffered from indigestion for the past year.

Three months ago after eating a hearty meal she had a sudden attack of sharp pain beginning in the epigastrium and radiating to the back. The pain was most severe in the right hypochondrium and radiated to the right scapula. There was much tenderness over the region of the gall-bladder. The attack lasted about two hours and was relieved only by morphine.

Since then she has had several similar attacks and has occasionally vomited bile. The pains are not colicky nor accompanied by jaundice. Her bowels are regular and urination normal. She has lost weight and appears to be poorly nourished.

She has consulted a gastroenterologist who suggested she might be suffering from "appendicular dyspepsia."

Temperature 98 deg., pulse 88, respiration 22.

Physical Examination: is negative except for considerable tenderness over region of gall-bladder and marked rectus rigidity.

Comment: Duodenal ulcer might be thought of in this connection, but there was no blood in the gastric contents or the feces (though this would not exclude ulcer). The pain, however, let it be noted was sudden in onset—the pain of duodenal ulcer usually has a specific relation to the ingestion of food, it appears several hours later, and is relieved by eating (the so-called "hunger pain"). Pain in duodenal ulcer is of slower onset and of less severity than the findings here depicted.

We are inclined to believe that the diagnosis of gall-stones will best explain the symptoms in this case—no other diagnosis seems as likely.

Operation: We make our incision at the border of the right rectus from the margin of the ribs downward. On opening the peritoneal cavity I find a greatly distended gall-bladder which is not dissimilar to a banana in size and shape—I am able to deliver it through the wound so that you can all observe its characteristics. This distention indicates that there is some obstruction in the cystic duct. We shall very carefully empty this gall-bladder by means of an aspirating needle so that we can explore its interior. The gall-bladder being empty we still further open the viscus to permit us to introduce the exploring finger. The cause of the trouble is felt wedged down in the neck—it is a stone about the size of a marble which I now deliver for your inspection. There is another smaller stone free in the gall-bladder.

The action of this stone in the neck of the gall-bladder is easily explained—it is a "ball-valve" action—permitting the bile to enter the gall-bladder but preventing its exit by closing the cystic opening like a valve. This bladder has been distending for some time for you will recall that the gall-bladder has a great capacity for distention. A case is reported where a distended gall-bladder having reached the pelvis was operated for an ovarian cyst.

Having examined the gall-ducts and found them unobstructed we shall drain the gall-bladder by suturing in a large rubber tube. This tube will remain in for a week and the opening will then be allowed to close.

Remarks: This is an extremely interesting case both from the gastric and the biliary aspect.

Someone has asked a very pertinent question in regard to the absence of jaundice in this case.

There are certain well defined mechanical principles in reference to the *surgical significance of jaundice* which should be clearly understood. Jaundice is an important symptom in biliary disease, but we must understand its anatomical rationale in order to make a proper differential diagnosis.

In biliary disease jaundice is sometimes present, sometimes it is absent.

How is it to be interpreted?

First, you must understand that jaundice is due to interference with the flow of bile from the liver to the intestine—(it is a daming back of the bile in the liver).

Second, the obstruction must be somewhere in the hepatic or common ducts.

Obstructions in the gall-bladder or cystic duct never give jaundice—the obstructing stones in this case were at the neck of the bladder—just where the funnel-shaped neck merges into the cystic duct.

Hence, obstructions in the gall-bladder or cystic duct never produce jaundice.

Jaundice is not a symptom of gall-bladder disease; it is a symptom of gall-duct disease.

It is true that jaundice may occur in conjunction with inflammation of the gall-bladder, but not so long as the inflammation is confined to the gall-bladder. When jaundice occurs in connection with inflammation of the gall-bladder it means that the inflammation has extended beyond the gall-bladder.

To sum up the causes of jaundice:

1. Inflammation, causing swelling of the mucous membrane and obstruction of the main bile ducts.
2. Gall-stones somewhere in the hepatic or common ducts—never in the gall-bladder or its ducts.
3. Pressure upon the ducts from without, from tumors (carcinoma of the head of pancreas), adhesions, or plastic exudate after chronic perforations of ulcers of the stomach or duodenum.

394 Clinton Avenue.

A NEWER METHOD OF VACCINATION*

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Nearly three years ago, the author conceived the idea that more protection would be offered against infection following vaccination, if the virus could be introduced with less trauma. With this in view, I began to introduce the virus subcutaneously and have used this method in several hundreds of vaccinations in children.

The instrument used is an ordinary hypodermic syringe with a very fine needle.

For convenience of manipulation, one drop of the virus is shaken up with five or ten minims of a normal salt solution and placed in the barrel of the syringe.

The site chosen for injection is thoroughly cleansed with green soap and alcohol.

The point of the needle is then introduced as nearly parallel with the surface of the skin as possible, so that before the virus is released the needle may be raised and its exact situation observed through the skin. This detail is of importance because the object is to introduce the virus under a protecting layer of skin but to introduce it nowhere else.

I have used three sites for injection—the back just below the angle of the scafula, the upper portion of the buttocks and the outer aspect of the thigh about its upper third. Experience has proven that the latter is the best situation for children because in spite of the fact that it at first seems to be the most exposed, it is the best protected area during their play and usual activities.

The course of a vaccination performed by this method does not differ in any particular from that done in the usual way of scarification, except that the inflammatory areola is less widespread and the itching is practically absent. While the vesicle ruptures in the large majority of instances in vaccination as commonly performed, in this method there is rarely a rupture but instead a gradual transition from an unbroken vesicle to a protecting scab.

The resulting scar is typical but smaller.

Has this method any dangers? There are none that present themselves except injection into a vein. If the precaution of raising the needle as suggested before releasing the virus is observed, this cannot possibly occur.

Has the method any advantages? There are several.

(1) In children the rapidity of the procedure is of no small import. As there is no delay while the virus dries (as in the common method) no scarification and no rubbing in of their virus, an uncomfortable if not terrifying procedure which takes from three to five minutes to perform is reduced to one taking from three to five seconds.

(2) Primary cleanliness is conserved because there is no scarification.

(3) Protection is assured against the usual itching of the first few days following scarification because there is not sufficient trauma to cause it and to the child no itching means no scratching.

(4) Later in the course the unbroken vesicle merging into the protecting scab offers further insurance against infection.

(5) The evident cleanliness and rapidity of the procedure appeals strongly to the sensibilities of the parents and their consent to its performance is more readily obtained.

(6) The procedure undoubtedly diminishes the opportunity for both primary and secondary infection.

Previous to my consent to present this "newer method of vaccination" before this society, I asked one of my assistants in the pediatric department of the Methodist Hospital, Dr. Alexander Spingarn, to collect what data he could for me. After a search of the French, German and English literature, he reported that nothing was found that approximated this method. We were justified in the hope that we had found a new method. Last evening we discovered an article* of which the following is a brief digest.

"In 1899 Van Telburg Hofman was detailed as assistant surgeon of the U. S. Public Health Service at Norfolk, Va. Smallpox prevailed and Hofman vaccinated fifty members of a crew of a coastwise steamer by what he called an "intradermic" method, using a syringe to inject the virus in the arm. Constitutional and local reactions were those typical of successful vaccination with a characteristic scar. The author conceived the method because of the unhygienic surroundings of the men, who were mostly stokers."

I am pleased to record this eleventh-hour discovery of Dr. Hofman's priority, because while the method differed in detail, in principle it was the same. At is appeals to the eye, my subject was "a newer method of vaccination." As it may appeal to your mind and sense of practicability, I would have you change it, to "a better and safer method of vaccination," particularly as it applies to children.

*Read before the Medical Society of the County of Kings, October 19, 1915.

Medical Register, December 1899, vol iii, page 253.

Scarlet Fever.

B. F. Knause, New York, gives a critical study of the figures of Dr. Young, the late Chicago Health Commissioner, especially in regard to quarantine. He compares Dr. Young's figures with those of the Borough of Brooklyn, and argues that the liberal quarantine of the Health Department of New York, according to the weight of evidence, is more justifiable than the system of classified quarantine used in Chicago. It certainly interferes less with the school attendance of children and causes less hardship in families. A more extensive comparison of figures, however, will be required to satisfactorily settle the questions involved.—(*J. A. M. A.*)

A REPLY TO A. C. JACOBSON, M. D.

DANIEL E. S. COLEMAN, Ph. B., M. D.,
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New York.

Dr. Jacobson's article, "Hahnemann's One Experimental 'Proof'", appearing in the August number, shows a profound lack of knowledge concerning the real facts of Homoeopathic history. He bases his inferences upon the most superficial examination into the truth. If he would carefully read Hahnemann's "Organon," "Materia Medica Pura," "Chronic Diseases" and "Lesser Writings," along with the "Life of Dr. Samuel Hahnemann" by Dr. Lindsley Bradford, he would become conscious of the gross injustice he has done by publishing an article founded upon insufficient data. *Hahnemann did not base his entire platform of similia upon his experiment with cinchona.* Such an assertion is absurd and *untrue.* That experiment was only the faint ray of dawn leading to monumental achievements. He had no thought of similia when starting his experiment with cinchona any more than Columbus had an idea of discovering America when he set out upon his eventful voyage. The greatest country the world has ever known sprang from the discovery of Columbus, and the greatest system of curative medicine was developed from the discovery of Hahnemann.

After his experiment with cinchona bark in 1790, Hahemann did not immediately rush into print, as the modern doctor is so apt to do, expounding a discovery which had no verification. His first article entitled "A New Principle of Ascertaining the Curative Power of Drugs" appeared in Hufeland's Journal in 1796, after six years of the most constant and painstaking research and experiment. Let me quote from Bradford's "Life and Letters of Hahnemann," page 37:

"A very graphic description of these experiments of Hahnemann is given in 'Samuel Hahnemann, A Biographical Study,' as follows: 'To judge of the physiological effect of bark he took several doses as prescribed by the profession for ague. The result was that in his previously healthy system there occurred decided paroxysms resembling those of ague. The experiment had carried him farther than he anticipated. It had taught him not only the exact physiological effects of bark; it had shown him that those effects were apparently the same as the symptoms of the disease it was given with undeniable success to cure. Does bark, then, he asked, produce the same symptoms as it removes? Does it alike produce and cure ague? It is called a specific.* Is the specific curing power of drugs founded on such a principle? Do they all uniformly excite a counterfeit disease to that which they remedy? Drug after drug, specific after specific, was tested on himself and on healthy friends with one unvarying result—each remedy of recognized specific power excited a spurious disease resembling that for which it was considered specific. But many more symptoms than those diagnostic of any one disease resulted from almost every medicine, and aroused a hope in the experimenter's mind of specifically treating a greater number of diseases than had ever been so treated before. Besides discovering many valuable medicinal phenomena undreamt of, he verified his discoveries and observations by ransacking the volumes of recorded experiments on materia medica and the whole history of poisoning. The effect of his investigations was not, therefore, a blind leap from one false theory to another which might be equally fallacious and more mischievous than the former one. Six years were expended in proving drugs and verifying his principle before proclaiming it to the world'".

"Regarding these first experiments in proving drugs on the health, Everest says: 'Inasmuch as the action of the same substance varied according to the age, sex, and idiosyncrasy of the subject to whom it was administered, it was not considered sufficient to experiment on a few individuals. His own family were all pressed into the service, and each substance was tried in various doses on many different persons, under every possible variety of circumstances, and beneath the immediate inspection of Hahnemann himself.'"

If he based his entire platform of similia upon his experiment with cinchona, why did he find it necessary to spend six years' most scrupulous application before he wrote one line about his new method?

It is a noteworthy fact that Hahnemann antedated Pinel in establishing the humane treatment of the insane in 1792, when he began the cure of Klockenburg and others with remedies based on the principle of similars. It was later in 1792 that Pinel independently unchained the maniacs of the Bicêtre. My remarks are intended in no way to detract from the honor of the great Frenchman; let him divide such with Hahnemann.

Hahnemann did not mention the word "homoeopathy" until the publication of the "Organon" in 1810, twenty years after his experiment. These years were spent in the most stupendous undertaking and research the medical world has ever known.

The records of provings of the numerous remedies made by Hahnemann and his followers are contained in his Materia Medica Pura. Of course, many more provings and new drugs have been added since his time.

Dr. Jacobson, by some extraordinary reasoning, concludes that Hahnemann had malaria because quinine is capable of re-establishing latent symptoms in those who harbor the plasmodia. His syllogism cannot stand. He does not conceive that cinchona can produce symptoms simulating certain cases of malaria in healthy individuals. But such is the fact. During the years I taught the History and Principles of Homoeopathy I found no records to lead me to suppose that Hahnemann suffered from malaria, and I deny such a statement. Prove it, Dr. Jacobson. Again, Hahnemann was not the only prover of cinchona; many others took part and new provings have been made since his time. A complete record can be found in Allen's Encyclopedia of Pure Materia Medica. Many of the smaller works contain sufficient data, however, if Dr. Jacobson cares to examine them. Space does not permit me to mention them. The New York Homoeopathic Medical College and Flower Hospital library is open to him. This he may know: workmen who manufacture quinine from the bark and are exposed to the dust suffer from so-called "quinine-fever", the manifestations of which are similar to certain forms of intermittent fever.

It must be remembered that cinchona is only one of a great number of drugs used by the homoeopathic school in the treatment of intermittents, and there are many which are much more frequently indicated. The choice depends upon the symptoms present in the individual case. Cinchona put Hahnemann upon the right road, but only at its beginning.

101 W. 78th Street.

* Well known to physicians at that time.

In typical dermatitis herpetiformis the mucous membranes of the mouth is much less affected than in pemphigus.

VAPORIZED ETHER FROM A THERMOS FLASK.

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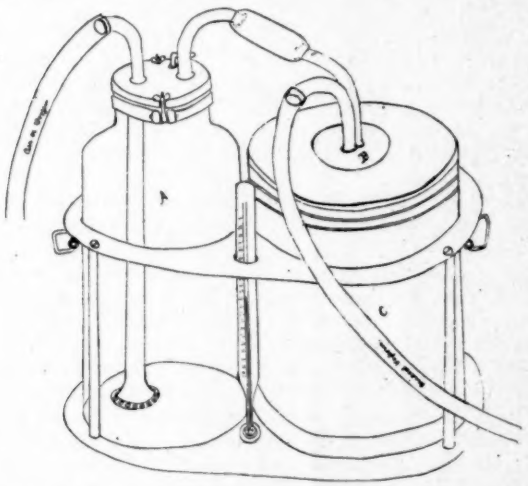
I desire to describe a simple aparatus for the vaporization of ether, which successfully meets the conditions accepted by anesthetists who administer ether by the closed method. These factors as laid down by Gwathmey are:

(1) Warming the agent.
(2) Utilizing moisture.
(3) Combining oxygen or air with the agent.
(4) Deodorizing the agent.
(5) Utilizing carbon dioxide.
(6) Rebreathing.

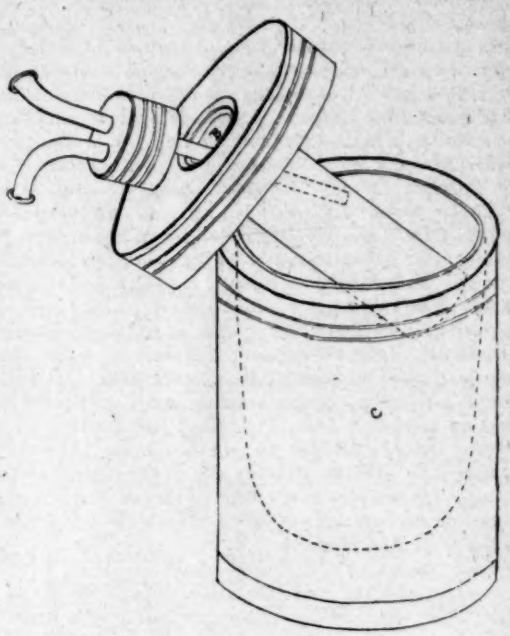
A skeleton metal stand holds (A) a glass bottle fitted with a metal cover through which pass the regulation wash bottle tubes. This bottle holds ether. Air is forced through the long tube, mixes with ether and forms a vapor which is carried into (B) a narrow metal tube welded into the cap of a wide mouthed Thermos flask. This container fits into the Thermos (C) and is surrounded by warm water, the temperature of which is maintained for several hours. The metal container (B) holds 10 grms. of a 50 per cent. alcoholic solution



of oil of bitter orange peel and has sufficient air space above to allow a thorough mixture of warm and moist air-ether-orange vapor. At a temperature slightly below that of the surrounding water this vapor is passed into a rebreathing bag from which it is carried to the patient by any closed mask. It is inhaled and exhaled by the patient, a small amount being allowed to escape through the partly opened expiratory valve. The individual thus receives a vapor of definite ether percentage, constantly reinforced by air or oxygen, containing a pleasant volatile oil, at a gradually diminishing temperature.

By repeated experiments with several vaporizers set in an open or semi-closed pan of hot water, we have found that it takes a temperature of 110 degrees F. to raise the temperature of the ether in its glass chamber from about 60 degrees F. to 100 degrees F. This heat is readily given off as the pan water cools so that by the end of the first hour the temperature of the ether has fallen to 86 degrees F., and at the end of the second hour it has fallen to 82 degrees F.

With the aid of our Thermos flask the vapor reaches the rebreathing bag above body heat. This helps the induction of anesthesia. At the end of the first hour the temperature of the vapor is at body heat, while at the end of the second hour it is ten degrees below body heat. This temperature is 24 degrees F. higher than



the temperature of ether on the gauze mask of an open drop cone.

	Start.	End of 1st Hr.	End of 2d Hr.
Pan Water	110 dgs.	82 dgs.	78 dgs.
Ether Bottle	60 dgs.	86 dgs.	82 dgs.
Thermos Flask	110 dgs.	100 dgs.	90 dgs.
Orange Chamber	74 dgs.	98 dgs.	88 dgs.

A comparison of temperature at the end of one hour where the open drop and the closed vapor methods are used.

Open Drop Cone.		Closed Mask.	
Upper Chamber.....	64 dgs.	Upper Chamber	
Lower Chamber.....	84 dgs.	Lower Chamber.....	95dgs.
Temp. of Breath.....	95 dgs.	Temp. of Breath.....	98 dgs.

It is stated that one of the advantages of the closed vapor method is its economy of ether, and therefore of the patient's vitality. A comparative study of fifty anesthesias attests the truth of this fact.

Mode	No.	Avrg. per hr.	Smallest amt. per hr.	Largest amt. per hr.	Smallest amt. over any period	Largest amt. over any period
		Grms.	Grms.	Grms.	Grms. in 2¼ hrs.	Grms. in 40 hrs.
Closed Vapor..	28	108	90	175	125	175
					Grms. in 1 hr.	Grms. in 50 hrs.
Open Drop.....	16	165	125	170	125	165
					Grms. in 40 hrs.	Grms. in 2¼ hrs.
Intra-Nasal ...	6	125	100	145	50	400

Other advantages claimed for the reinforced rebreathing of vaporized ether are "lessened post-anesthetic vomiting, decrease in number of cases of abdominal distension, abolition of post-anesthetic lung complications" (Gwathmey). All of our series received pre-anesthetic treatment and hypodermic medication with the idea of preventing shock and its post-operative sequelae. Most of the cases were operated on for surgical conditions of the abdomen. The intra-nasal cases were those operated on for surgical conditions of the head, face and neck.

Sequelae	Closed Vapor	Open Drop	Intra-Nasal
Abdominal Cases	24	10	0
Male	8	9	4
Female	20	7	2
Conscious in 1 hour	17	3	4
Conscious in 1½ hours	7	9	1
Conscious after 2 or more hours.	4	4	1
Nausea and Vomiting:			
Exempt	15	6	2
Moderate	8	6	4
Excessive	5	4	0
Distension:			
Exempt	12	6	4
Moderate	13	8	2
Excessive	3	2	0
Catheterization necessary	6	3	1

The induction of a modern anesthesia is usually facilitated by the preliminary use of certain agents. The sequences used in our series of fifty, the average amount of preliminary anesthetic, and the average time of induction are here mentioned. Where chloroform was used, sufficient air space was maintained.

Mode of Induction	No.	Amt. of Prelim	Time of Induction
Closed, reinforced with air	15	0	10″
Closed, with Ethyl Chlor.	5	6 grms.	7″
Closed, with Chloroform	7	7 grms.	6″
Closed, reinforced with O_2	1	50 gals. of O_2 thruout.	12″
Open Drop	1	0	15″
Open, with Ethyl Chlor.	15	7 grms.	5″
Intra-Nasal, with Ether Drop.	6	50 grms.	12″

The apparatus described is illustrated in the accompanying sketch by Miss C. Fox, Operating Room Supervisor. It is constructed by Mr. Frank Flamm, of 347 St. Marks Ave., Brooklyn, N. Y.

Isolation of the Typhoid Bacillus from the Living Body.

The *Presse Medicale*, March 25, contains an article by Carnot and Weill-Halle describing a unique but simple device. In a small U tube with narrowed inferior portion fine sand is introduced to a depth of two cm. The specimen of blood is mixed with ox bile, filtered and sterilized in the autoclave. The bile blood mixture is poured into one limb of the U tube and sterile bouillon into the other, to the same level. The bile prevents clotting of the blood and is, to a certain extent, a selective medium for the typhoid organism. The sand filter in the U tube prevents admixture of bile and bouillon, but allows the very motile typhoid bacilli to pass from the bile culture to the bouillon, with the result that in the case of a positive test, a typical bouillon culture is seen on the following day. Positive results are constantly obtained in the first few days of a typhoid infection, and usually persist throughout the first week.—(*New York Med. Jour.*)

J. M. Cruice (*Am. Jour. Med. Sci.*) says jaundice occurring in the course of tuberculosis is due to some form of tuberculosis of the liver. The grade of jaundice is helpful in surmising the pathological condition, an intense form being due to pressure of tuberculous glands on the extra-hepatic ducts, or to some form of the solitary tubercles of the liver; milder forms of jaundice are produced by a miliary tuberculosis of the liver.

Although in the aorta there is much elastic tissue and but little muscular fibre, yet even it has the power of contracting, for in the case of a criminal executed at Würzburg in 1854 it was found to contract on the application of electricity shortly after death.

Special Article

THE USE OF CERTAIN ANTISEPTIC SUBSTANCES IN THE TREATMENT OF INFECTED WOUNDS.

H. D. Dakin of the Herter Laboratory, New York, reports on his work, which was carried out in laboratories at Compiègne supported by the Rockefeller Institute for Medical Research attached to Hospital 21 of the French army. The *British Medical Journal* prints his report and editorially speaks enthusiastically of this well known American's work.

In order to make a judicious choice of the antiseptic most likely to give useful results in the treatment of infected wounds, many different factors have to be considered in addition to germicidal activity, including the irritating properties of the substances, their toxicity, solubility, ability to penetrate tissues and to be absorbed, and their chemical reactions with proteins and other tissue constituents.

The killing of bacteria by ordinary antiseptic substances is essentially a chemical reaction between the antiseptic on the one hand and the proteins and other cell constituents of the micro-organism on the other. The destruction by antiseptics of bacteria suspended in water is easily effected, because no proteins are present in the mixture other than those derived from the micro-organism. The destruction by antiseptics of bacteria mixed with blood serum, pus, and other exudate is much more difficult because the antiseptic acts not only on the micro-organisms but on other protein substances as well. Therefore, in judging of the antiseptic action of the substance suitable for the treatment of wounds, it is essential that its germicidal action be tested against micro-organisms mixed with blood serum or similar substances, and not simply against bacteria suspended in water.

The germicidal activity of all known antiseptics is greatly reduced by the presence of blood serum or similar substances, and in some cases, this reduction is so great that the compound loses all practical antiseptic value.

The following table contains results which illustrate this enormous reduction in germicidal action by blood serum in the case of several common antiseptics.

Antiseptic.	Without Blood Serum.	With Blood Serum.
Phenol	1:250—	1:50—
	1:500+	1:100+
Salicylic acid	1:2,500—	1:100—
	1:5,000+	1:250+
Hydrogen peroxide	1:3,500—	1:1,700—
	1:8,000+	1:2,000+
Iodine	1:100,000—	1:1,000—
	1:1,000,000+	1:2,500+
Mercuric chloride	1:5,000,000—	1:25,000—
	1:10,000,000+	1:50,000+
Silver nitrate	1:1,000,000—	1:10,000—
	1:10,000,000+	1:25,000+
Sodium hypochlorite	1:500,000—	1:1,500—
	1:1,000,000+	1:2,000+
Benzene sodium sulphochloramide	1:500,000—	1:1,000—
	1:1,000,000+	1:2,000+
Paratoluene sodium sulphochloramide	1:750,000—	1:2,000—
	1:1,500,000+	1:3,000+
Acetylchloraminodichlorbenzene	1:500,000—	1:2,500—
	1:1,000,000+	1:5,000+

The figures indicate the concentration of antiseptic necessary to sterilize one drop of a fresh culture of *Staphylococcus aureus* in a total volume of 5 c.cm. acting for two hours. + indicates growth; — indicates complete sterilization.

But in choosing a suitable antiseptic many other factors than germicidal action need to be considered. Mercuric chloride, which among the substances referred

to in the table shows the highest germicidal action, is probably the least useful and most objectionable as an antiseptic for the treatment of infected wounds. It may be of use to consider some of the limitations of the commonly used substances referred to in the above table.

Phenol is characterized by very low germicidal power, especially when acting in the presence of serum. When used in sufficiently high concentration for germicidal efficiency it is decidedly destructive of healthy tissue.

Hydrogen peroxide gives encouraging results when tested against bacteria in the test tube, but when used on wounds the substance has little germicidal action, for it is decomposed with the greatest ease by the enzyme catalase present in all tissues and in the blood cells. Hence its action can only be exerted during a trifling interval of time. The mechanical detergent action connected with the rapid disengagement of oxygen gas on infected surfaces is probably of greater value than any antiseptic action exerted by the hydrogen peroxide.

An interesting experiment related to Dakin by Professor E. K. Dunham of the editorial board of the MEDICAL TIMES, may be quoted here. A rabbit which had received an intravenous injection of the Welch bacillus (*B. aërogenes capsulatus* or *B. perfringens*) was killed, and the infected liver was removed and carefully sectioned. It was found that cubes of the infected liver only 1 mm. in size could be immersed in and incubated with hydrogen peroxide of moderate concentration without destruction of the micro-organisms.

Hydrogen peroxide, as regards its antiseptic action, must be regarded as of slight value, even against anaërobic organisms.

Mercuric chloride readily loses most of its antiseptic action in presence of many tissue constituents, and, as is well known, is irritating even in dilute solution. It is useless for the sterilization of pus when employed at any reasonable concentration.

Silver nitrate is of greater value than mercuric chloride, but when used in sufficiently high concentration is irritating. Many tissue constitutents inhibit its action markedly. The photo-sensitiveness of the silver compounds formed is objectionable.

Iodine, which has proved so valuable for the disinfection of skin, has given much less satisfactory results when used for deep wounds owing to protein coagulation and irritation of the tissues. The penetrating power of iodine is slight, and wounds which have been freely treated with it are apt to cicatrize more slowly than others.

Principles Involved in the Preparation of the Hypochlorite Solution.

Sodium hypochlorite has high germicidal action, and has many other desirable properties. But sodium hypochlorite as ordinarily prepared is of extremely variable composition, contains free alkali and sometimes free chlorine, and is consequently irritating when applied to wounds. By a simple process, which will now be described, it has been possible to render the hypochlorites much less irritating while retaining their antiseptic action unchanged.

Solutions of sodium hypochlorite always contain free alkali even when prepared with the greatest care. A so-called "neutral" solution of sodium hypochlorite has an alkaline reaction. This is due not only to free alkali which may remain from the process of preparation, but also to the fact that the hypochlorite in solution undergoes hydrolytic dissociation giving free sodium hydroxide and hypochlorous acid.

$$NaClO + H_2O = NaOH + HClO$$

The irritating action of ordinary hypochlorites is largely due to this formation of free alkali. The extent of this hydrolytic dissociation increases with dilution, so that practically hypochlorites cannot be effectively rendered non-irritating by simply reducing the concentration, for a point is soon reached at which germicidal action is impaired while the irritating properties of the solution persist. In addition to the above sources of free alkali, it must not be forgotten that alkali may be liberated by the action of sodium hypochlorite on proteins, a reaction in which the chlorine of the hypochlorite is attached to nitrogen in the proteins, as will be shown later.

Now it is well known that certain fluids, such as blood and some other body fluids, also certain artificial salt solutions containing mixture of salts of polybasic acids —for example, phosphoric acid—are able to retain their essential neutrality even after the addition of limited quantities of acid or alkali. This is due to the fact that the addition of acid or alkali simply changes the relative proportion of two or more salts of the polybasic acid present in the solution.

Starting with this idea, and employing the feeble polybasic acid, boric acid, it has been possible to prepare a simple hypochlorite mixture which maintains approximate neutrality under all conditions, is practically non-irritating, and which, when properly applied, has given most encouraging results in the antiseptic treatment of wounds. It must be understood that the insignificant antiseptic action of boric acid has nothing to do with the employment of this acid.

The principle of the preparation is as follows: Chloride of lime (bleaching powder) is decomposed with a solution of sodium carbonate and the filtered solution containing sodium hypochlorite together with a slight excess of alkali is mixed with boric acid in such quantity that the solution is acid to phenolphthalein suspended in water but still alkaline to litmus. The resultant solution contains a balanced mixture of hypochlorite and polyborates of sodium with small amounts of free hypochlorous and boric acids. Thus the irritating action of free caustic alkali is avoided, for even if momentarily formed it would be at once neutralized by the boric acid or acid borates present in the solution.

Preparation of Solutions.

The preparation of a solution of suitable concentration for direct application, containing 0.5 to 0.6 per cent. of sodium hypochlorite, may be carried out very simply as follows:

One hundred and forty grams of *dry* sodium carbonate (Na_2CO_3), or 400 grams of the crystallized salt (washing soda), is dissolved in 10 litres of tap water, and 200 grams of chloride of lime (chlorinated lime) of good quality is added. The mixture is well shaken, and, after half an hour, the clear liquid is siphoned off from the precipitate of calcium carbonate and filtered through a plug of cotton; 40 grams of boric acid are added to the clear filtrate, and the resulting solution is ready for use. A slight additional precipitate of calcium salts may slowly occur, but it is of no significance. The solution should not be kept longer than one week. *The boric acid must not be added to the mixture before filtering, but afterwards.*

A stronger solution may be prepared by decomposing chloride of lime with sodium carbonate in the proportion of 150 grams of the former to 105 grams of the latter dissolved in a litre of water. The mixture is filtered and a measured portion of it (20 Cc.) is rapidly titrated with a boric acid solution of known strength (31 grams per litre), using phenolphthalein suspended

in water as indicator, in order to determine the amount of solid boric acid to be added to the rest of the filtrate. An excess of boric acid should be avoided, so that it is best to add slightly less than the calculated amount. An ordinary alcoholic solution of phenolphthalein cannot be used as indicator, as the alcohol is at once attacked.

The concentrated solution thus prepared contains about 4 per cent. of sodium hypochlorite, and should be mixed with six parts of water before use. It can be kept for a month without serious decomposition. It can easily be made at a negligible cost by any competent druggist.

To obtain the best results it is essential to commence the antiseptic treatment of the wound at the earliest moment possible, and to bring fresh quantities of the antiseptic solution in contact with all parts of the wound as frequently as possible for a considerable period of time. This is naturally a difficult problem, requiring different methods for various types of wound. To give some idea of the quantities of solution employed it may be mentioned that 5 to 10 Cc. may be introduced every two hours by means of rubber tubes into small wounds, using a pipette or syringe, while for the irrigation of such wounds as fractured femurs, accompanied by much destruction of tissue, as much as 1, or even 2, litres a day may be employed. The dilute solution, prepared as described, may be used in large quantities for the continued irrigation or instillation of wounds for more than a week without producing visible irritation. It is extremely rare for slight irritation of the skin to occur, and this may be guarded against by the application of vaseline to the skin adjacent to the wound. As a wet dressing the solution may be used almost indefinitely. A few comparative tests on similar surface wounds do not indicate that cicatrization is delayed, even by its continued use.

The solution has the valuable property of assisting in the rapid dissolution of necrosed tissue, this being doubtless due to the ability of hypochlorites to attack the (NH) groups present in proteins with formation of soluble products. It has a certain hemostatic action as well but is actively hemolytic, and should not be injected intravenously.

It is difficult to produce simple convincing evidence of the usefulness of an antiseptic. Records of a few individual cases treated with brilliant results are, of course, of no great value, for many infected wounds do well with a minimum amount of treatment, but the clinical results obtained during six months' use of the solution by a number of observers in different hospitals warrant the belief that the solution is of genuine value. By far the most striking results are seen in ambulances, where treatment can be commenced a few hours after the wound has been received. Among these cases the proportion of cases which at no time show a significant rise in temperature and in which healing without suppuration occurs is very large. In many cases it has been possible to make comparative tests, with and without antiseptic, on similar wounds with striking results. Records obtained by means of serial colored photographs of the gradual changes in wounds of the most varied kind under different conditions show definite differences in favor of the solution, and in no case has any objectionable after-effect been traced to the action of the antiseptic. It should be stated that most of the cases treated with the antiseptic were kept under observation for several weeks until discharged as convalescent. This is, of course, important for judging of the ultimate value of the treatment.

An idea of the antiseptic properties of the solution may be gathered from the following figures: Staphylococci suspended in water are killed in two hours at a concentration of hypochlorite between 1:500,000 and 1:1,000,000, while in the presence of serum the necessary concentration is between 1:1,500 and 1:2,000. Streptococci are more readily killed, while *pyocyaneus* suspended in water is killed in two hours at a concentration between 1:100,000 and 1:1,000,000, while in serum between 1:2,500 and 1:5,000 is necessary.

Hypochlorites are extremely active substances chemically, and they should not be used in conjunction with other antiseptics nor with alcohol or ether. Wounds which have ben previously treated with much iodin may take on a dark color, due to the re-liberation of iodin, but this is of no importance.

Accidents Fatal After a Long Interval.

An inquest was held recently on the body of a miner who was injured on January 27, 1911. The injury was caused by a blow which bruised him on the left hip. He was away from work for three weeks, but was able to return to work for six weeks, and then again he was compelled to give up his work, and he received compensation to the day of his death, in August of this year. The coroner thought it advisable to hold an inquest as the death was considered to be due to the accident, even though the accident had occurred more than four and a half years previously. According to the medical evidence the accident had damaged the vertebral column, with the result that it had become attacked with tuberculous caries, which ultimately led to the man's death. Recently also an inquest was held on a man who died five years after a piece of mutton bone had passed into a bronchus, giving rise to the formation of abscesses in his lung. Cases such as these naturally raise the question whether it is legally or practically necessary to hold an inquest on every case in which an accident has occurred, and where there is a possibility of the death having been due to an accident, even though a long time has elapsed since the accident happened. Is there to be no period of limitation after which an inquest need not be held? It is not difficult to imagine a case in which a man might receive a severe injury, such as a fracture of a number of ribs, which would incapacitate him for active work, and many years after he might die, and few surgeons would be willing to say that his death was in no way due to the long-preceding accident. Cases have been recorded in which caries of the spine has been attributed to an injury inflicted a dozen years or more before—the example given above of this possible sequence of events being by no means an isolated one. What good will an inquest do in such a case? The object of an inquest is to ascertain if the death was due to criminal, avoidable, or natural causes, with a view to the detection and punishment of crime, the prevention of accidents, and the general security of life. We believe inquests are not held, as a rule, in such cases as those referred to above, and on the occasions on which they have ben held they have been due to an erroneous conception of his duty on the part of the coroner. The death may, in fact, be traceable to injuries which would render it a violent or unnatural death if they had been inflicted within a year and a day; but the law, not altogether unreasonably, does not so regard it so far as the coroner is concerned. It is conceivable that civil litigation held in abeyance for several years might be based upon a death supervening at length upon accidental or other injuries, but the holding or not holding of an inquest should not affect it one way or the other.—*Lancet*, September 18, 1915.

Diagnosis and Treatment

Spartein Sulphate Based on Use in 305 Cases.

Samuel E. Earp, of Indianapolis, gives an exhaustive review of this subject. There seems to be a diversity of opinion concerning Spartein action. Some authors who have found it to be of little service, used it in desperate cases only, after all remedies had failed; this is true of Dr. Hare, one of our best therapeutists. Earp has used spartein for a number of years. Some of his patients were in private practice and many of them at the Indianapolis City Hospital during service as clinician of the Indiana University School of Medicine.

Case I. L. H., age 76, an alcoholic, gave a history of rheumatism. There was a chronic myocarditis, some dilatation and a mitral murmur. He had had several attacks of angina pectoris. The pulse was irregular and a record could not be obtained. One grain of spartein sulphate was given each four hours. Improvement on the second day. On the fourth day pulse 80 and regular, no dyspnea. On the eighteenth day the improvement was so marked that the patient walked around the ward but the mitral gave a faint blowing sound. Spartein was used for two months in doses of one grain three times a day. He is now performing full duty as a cook at a large hotel and needs no medication when he lets alcohol alone.

Case 2. H. C., male, age 32. This was a case of aortic regurgitation and also a defect of the mitral valve; feet were edematous and patient showed marked dyspnea; albumen, renal cells, pus and red cells by report of examination of the urine. Blood pressure S. 275. D 155. Wassermann negative. Pain and swelling in right knee. The agents given were spartein, atropin and sodium salicylate in conjunction with sodium bicarbonate. When dyspnea was severe codein was given. Some improvement on the third day. With a kidney lesion and high blood pressure spartein seemed the proper agent. It did not increase the blood pressure but did support the heart and acted as a diuretic but without untoward consequences. While the best to be expected was to prolong the patient's life and make him comfortable, the improvement was sufficient to permit him to leave the hospital and do light work.

Case 4, S. B., female, age, 44. A diagnosis of acute rheumatic fever complicated by myocarditis and mitral insufficiency. The treatment consisted of 20 grains of sodium salicylate each three hours and full doses of spartein sulphate. At the end of fourteen days this patient was dismissed as well. There was no shortness of breath and it was doubtful that the mitral murmur could be heard even upon forced exertion.

Case 6, V. W., male, age 49. Aortic stenosis and mitral regurgitation. This case might illustrate the influence of spartein on blood pressure. Before first dose of spartein (two grains each four hours) S. 142, D. 70. Three hours after first dose S. 120. D. 70. Three hours after first dose S. 120. D. 60. Twenty-seven hours later S. 110. D. 65. Six days after first dose of spartein S. 119. D. 68.

Case 9 was one of mitral regurgitation and aortic stenosis. Weak myocardium and edema of lower extremities. Urinary examination, albumen and casts. This case demonstrated the effect of spartein on the blood pressure in the patient, who was a colored laborer age 49. Before first dose of spartein S. 142. D. 70. One grain of spartein was given each three hours. Three hours after first dose, blood pressure S. 120. D. 60. Twenty-seven hours later S. 110. D. 65. Six days later S. 118. D. 68.

Case 27. An old man, irregular and intermittent pulse, difficult respiration, mitral murmur, swollen ankles, casts and albumen in urine. This man is a Civil War veteran and while not cured can do light work after a short period of medication of one grain of spartein each three or four hours. On the so-called irregular heart of old people with an intermittent pulse, spartein acts readily and efficiently.

In Earp's record book he checked off twenty-eight cases of pneumonia, both bronchial and lobar, some of which had a myocardial or valve lesion but in the main recovery was largely due to warding off heart exhaustion by the protective action of spartein.

Case 164 was one of the cardio renal variety with edema from feet to hips and patient helpless. The medication consisted of strychnia, spartein and salines. Spartein was given in 2 grain doses each three hours and in seventy hours there was no edema and the heart was calm but a mitral murmur could be heard during locomotion.

Case 200 has some points of interest which will be recognized. M. S., female, age 12, chronic myocarditis, endo-carditis and hypertrophy. Heart extends from third rib to costal margin and left mid-axillary line to right of sternum two inches. Cardiac seizures last twenty minutes; these are subdued by 1/8 grain doses of morphia hypodermatically. No history of rheumatism and patient said she had had heart disease since birth. At times morphia was required each hour for five doses to produce calmness. Ice-bag was kept on the chest constantly. January 25, 1915, spartein one-fourth grain each four hours was given, then increased to one-half grain and thereafter morphia was required less often, sometimes each second day instead of several times day and night. Very often the ice-bag would relieve the pain in the cardiac region without the use of morphia. March 31, the heart was stronger yet rapid, while the irregularity was noticeable only during excitement. At this date the ice-bag was used only when there was pain. In a week the patient was able to walk and had the liberty of the ward. The marked relief was an important factor.

Spartein seems capable of acting as a heart tonic without causing any untoward effects such as are witnessed in the use of some other agents and we do recognize more heart force and less frequency after spartein has been used. Whether given hypodermatically or per os it is evident that its physiological action is obtained by the larger doses such as one to two and one-half grains. The small doses are worthless. No doubt those who have used the fractional doses have met with negative results. While it produces favorable action as an un-irritating diuretic yet Earp does not particularly advocate its use when a simple diuretic is needed. In certain nephritic conditions spartein may be indicated at times when we hesitate to use those of another group.

Petty (*New York Med. Jour.*, April 3, 1913), has shown by experiments upon human beings with every possible aid of mechanical invention, with accurate records that spartein not only does not depress the heart muscle of a human being but on the contrary it acts as a positive and powerful tonic to it. Lawrence in the *Boston Medical and Surgical Journal* made certain deductions from information obtained from the Massachusetts General Hospital two of which are "that the effects of various drugs on the blood-pressure as determined on animals do not furnish reliable criteria for the administration of such drugs to man since the effect may be quite different in the latter." The pressure-raising effect of digitalis noted in animals and in healthy individuals does not occur, as a rule, when the drug is

administered to individuals suffering from cardiac decompensation."

While digitalis is frequently compared with spartein it has an avenue of usefulness in part a departure from that of spartein, and it is not germain to speak of one as a substitute for the other, or is it necessary to favor one to the exclusion of the other. To take this position shows a lack of a working acquaintance with either drug. With our present knowledge of therapy we cannot argue in favor of spartein as against digitalis with a view that digitalis always raises the blood-pressure. We have only to call to mind the clinically proved statement of Janeway in the *New York Medical Journal* for May 23—that the dangerous increase of blood-pressure from digitalis as used in human beings, is a superstition without any basis of clinical fact. The clinical applicaton of this newer conception of digitalis was recently revised by Martinent (*Presse Medicale*), who not only confirmed the observations of others but found that judiciously employed it could be used in a large proportion of cases to lower the blood-pressure.

Petty has made plain that spartein should not be classed with digitalis or that it has similar effects upon the circulatory system.

While spartein exerts equally as tonic an effect on the heart-muscle as digitalis, its influences on the arterial system, especially on the arterial capillaries is directly the reverse, digitalis being a vaso-constrictor and spartein a vasodilator. By dilating the arterial capillaries it reduces the resistance against which the heart is called upon to propel the blood. It may be thus seen why it prevents myocardial and general exhaustion, favors heart nutrition and the increase of heart-tone. It has the advantage of acting quickly and is practically non-toxic.

New Theory of Causation of Enterostasis.

Prof. Arthur Keith explains the theory of intestinal stasis by showing that in passing along the alimentary tract food is propelled through a series of zones or segments, each furnished with its own pacemaker and its own rhythmical contractions. In the heart we find two such zones—an auricular and a ventricular; in the normal heart the sino-auricular node is the master pacemaker. But a block or imperfection in conduction may occur between the two zones of the heart, with the result that "back-pressure"—a venous stasis—is produced. Now, seeing the similarity between the cardiac and alimentary motor mechanisms, we do not seem over-presumptuous if we suppose that irregularities may occur in the nodal and conducting system of the alimentary canal—irregularities of the same kind as are known to occur in the heart. When such irregularities or blocks do occur we should expect to find them at the points where one rhythmical zone or area passes into the succeeding zone. That is exactly what we do find. We find a block where the esophagus joins the stomach; we find another where the gastric zone ends and the duodenal begins; we find it where the duodenal zone passes into jejunal and where the jejunoiliac passes into the ileo-colic. We find a block may occur at any point of passage from a lower to a higher rhythm. At several of these junctional points sphincters are situated and I do not deny that the mechanism of such sphincters may become disordered and cause stasis of the alimentary contents, but it will probably be found that a disturbance in the action of a sphincter is but part of the disturbance which affects the entire rhythmical segment to which it belongs.

Further, it is clear that to obtain an orderly propulsion of the food along the whole length of the alimentary canal those various rhythmical zones must be closely co-ordinated in their action, and there is a growing body of evidence, both experimental and clinical, that points to a very close co-ordination by means of a complicated system of reflexes. Disturbance in any one segment upsets the rhythm in all the segments. Bayliss and Starling observed that distension of the duodenum inhibited the action of the ileum; surgeons are familiar with the fact that a duodenal disturbance upsets the rhythm of the stomach. From the facts already mentioned it is easy to see that disturbance in the excitability and rhythm of the pacemaker of the cæcum will be reflected to the lower ileum. One can understand how stasis in the great bowel may be followed by ileal stasis, duodenal or gastric stasis, or how a disturbance of the conductivity or excitability of any of the rhythmical zone may ultimately give rise to stasis in all.—(*The Lancet*, Aug. 21, 1915.)

The Prevention of Scarlet Fever and Measles.*

In a book just published on this subject Dr. Robert Milne, medical officer to Dr. Barnardo's Homes, presents the results obtained in these institutions in limiting the spread of outbreaks of scarlet fever by the use of measures directed to disinfection of the throat and skin, and similar claims as to control of outbreaks of measles are now advanced by the same physician. He advocates the early employment of glycerine and carbolic acid for swabbing the children's throats, and thorough inunction of pure oil of eucalyptus over the whole surface of the body. In the case of measles, owing to the coryza and bronchitis which characterize the first stage of the disease, it is advisable in the earliest period to employ in addition a light screen of gauze stretched on a cradle, covering the patient's head and shoulders, so as to obviate the danger of particles of infected mucus being disseminated in the act of coughing. Dr. Milne finds that if these measures are effectively carried out it is possible for children who are the subjects of measles or scarlet fever to be kept in the same room with their healthy companions throughout their illnesses without any conveyance of infection. The success which has attended the method at Dr. Barnardo's Homes certainly justifies further investigation of the degree of freedom from spread of infection apparently attained. Measles, though long regarded as a trivial disease which all children must endure, is the cause of very heavy infantile mortality owing to its complications and sequels, and a satisfactory mode of limiting its spread is much to be desired. In this direction it can only do good if Dr. Milne's experiences are widely known and acted on, so as to be effectually tested; but it is well to emphasize the absolute necessity that exists for the earliest possible diagnosis if the method is to be effectively used. It is only by applying the disinfectant treatment at the very outset that spread of infection can be prevented; indeed, the antiseptic treatment should be applied even before a certain diagnosis is arrived at, since it can do no harm in any case, and may, if its author's claims are verified, be of value in both diseases alike.

Certain Syphilitic Affections of the Heart and Aorta.

Dr. A. M. Anders, speaking before the College of Physicians of Philadelphia, remarked that the advent of the Wassermann reaction had shown that the etiological role of syphilis in diseases of the cardiovascular system has been heretofore underestimated. While he

*. The Prevention of Infectious Diseases (Scarlet Fever and Measles). By Robert Milne, M. D., C. M. Aberd. Printed at Dr. Barnardo's Homes, London, E.

would not say with recent investigators that syphilis was the principal factor in the production of heart disease, it could be assumed that rheumatism and syphilis headed the list as causes of organic injury to this organ. Aortic and cardiac syphilis might be the result of hereditary lues. Among the commonest cardiovascular conditions due to syphilis are myocarditis, aortic regurgitation, angina pectoris, and mesaortitis often resulting in aneurysm. The intimate connection between lues and aneurysm, well known to the older writers, had been emphasized by those of modern times. With Hausmann, Dr. Anders would caution the medical profession against regarding every cause of aneurysm, even in syphilitic subjects, as due to lues. Two differentiating etiological factors were that the root of the aorta was the usual seat of luetic aneurysms, which aneurysms were frequently multiple. Syphilis is now generally regarded as an essential factor in the causation of aortic incompetency, more particularly in cases developing before the forty-fifth year of life. As in aneurysm, a positive Wassermann reaction alone, unsupported by clinical evidence, did not warrant an assured diagnosis of lues although it rendered highly probable the existence of syphilis. On the other hand, it was to be remembered that aortic incompetency in a luetic subject might be due to other causes, especially if the lesion developed after middle life. Early involvement of the myocardium was not infrequent in the course of syphilis. Early recognition was difficult but important. The symptoms did not differ from those of myocarditis due to other infections and it had been shown that they disappeared promptly under energetic antisyphilitic treatment. Dr. George W. Norris emphasized the statement of Dr. Anders that the discovery of the spirochetes and the knowledge of the Wassermann reaction rendered possible the recognition of a number of lesions as definitely syphilitic which in the past were barely suspected to be such. It had long been known that the iodides did good, as did also in a good many of these cases, small doses of mercurials. According to the modern treatment not only were both these drugs used, but frequently salvarsan in addition. In the recent increased attention given to syphilitic nephritis it was comforting to know that if mercury or salvarsan were given the nephritis was benefited rather than injury done to the kidneys by the otherwise irritating drugs. A point emphasized in literature was the frequency with which sudden death might occur in the case of syphilitic myocarditis in the young as well as the old. Among the symptoms of diagnostic value in syphilitic myocarditis were low blood pressure, mild angeoid attacks associated with dilatation of the left ventricle and cardiac irregularity followed by auricular fibrillation. In these cases it was well to remember that salvarsan should not be administered without due consideration. It was noted that salvarsan was not altogether an innocuous drug and did have a tendency to lower blood pressure.

Another point of interest was that of syphilitic aoritis even in the young. It had been shown that a considerable percentage of newborn infants who died shortly after birth had spirochetic disease in their aorta. Gumma of the heart could be rarely diagnosticated during life because it often involved the silent regions of the heart; a presumptive diagnosis might, however, be made if the gumma involved the conducting system of the heart, in which was found a heart block.

Dr. Anders, in closing, said he had seen several remarkable results in the alternate and also separate use of salvarsan and mercury in the treatment of syphilitic nephritis. On the other hand he cautioned that there must be certainty that syphilis was the real cause of the cardiovascular and renal conditions. He had recently seen very disastrous results from the use of mercury in a case of nephritis which had been misdiagnosed as being of syphilitic orgin. The patient had died in a few days who otherwise might have lived for months or even for years. Mercury had its selective affinity for the kidneys and there was no other variety of nephritis than the syphilitic in which its use was justified. While it was true that since the discovery of the Wassermann reaction the true etiological importance of syphilis in many heart diseases had been in great part established, this could not be said of this test in relation to angina pectoris. He believed, however, that the close association of angina pectoris and syphilis would be established when the profession appreciated the importance of Wassermann tests in all cases of angina pectoris. During the early stages of syphilis he felt that the heart should be examined systematically.—(*Med. Record*, Aug. 14, 1915.)

A New Sign in the Diagnosis of Pulmonary Tubercle.

Clive Riviere presents seven facts of interest. 1. In pulmonary tuberculosis characteristic bands of percussion impairment, of constant position, shape, and size are present over both lungs.

2. These are found, to skilled percussion, before any other sign of phthisis, in certain cases before symptoms, and persist throughout the course of the disease.

3. On account of their position they are liable when noted to be ascribed, wrongly, to the presence of tuberculous deposits in upper and lower lobes.

4. They depend, in fact, on no morbid structural changes, but are of reflex origin; though absent in health they can be produced by appropriate means in any normal chest.

5. Their persistent presence denotes an irritation (? always inflammation) of the lung parenchyma of some causation not necessarily tuberculous.

6. Incidentally they are of notable value in the diagnosis of phthisis. They will help to decide the presence or absence of a hidden focus in a case suspected of early tubercle, and they are useful in the exclusion of all catarrhal conditions not involving the lung parenchyma.

7. Their reflex nature serves to explain the occurrence, unintelligible on other grounds, of percussion impairment in the earliest stages of pulmonary tuberculosis.

If any tubercular patient be placed in the usual attitude for medical examination with muscles relaxed, and by careful gentle percussion each back be examined from below upwards, areas of impairment or increased impairment will be found on both sides at certain levels. The lower area extends between the fifth and seventh dorsal spines, or sometimes a centimetre above or below this, and runs out as a peninsular over the scapular region; the upper area lies above the level marked by the interval between the spines of the first and second dorsal vertebræ.

These areas of impairment, or of relative impairment, are more marked on the side of disease or of most advanced disease, and are still demonstrable as bands of increased dullness where the tuberculous process has spread over the whole side to the base. In many such cases they are obvious to quite coarse percussion, when they will almost certainly be taken as evidence of disease over the upper and lower apices considered so characteristic of pulmonary tuberculosis of adult type. They are, however, present in very early disease, before, in-

deed, any other lung signs are discoverable, and skilled percussion demonstrates that, even at this stage, they are to be found over both sides. They are absent in the normal chest, nor are they present in cases of simple bronchitis, bronchiectasis, or other conditions which do not involve the lung parenchyma.—(*The Lancet*, Aug. 21, 1915.)

The Significance of Albumen.

A good many of the soldiers invalided from the front have been found to be suffering from something very analogous to acute nephritis. The cause is obscure. Acute nephritis is generally attributed to chill, exposure, and such like causes, so that if the cases had occurred during the winter campaign there would have been less cause to marvel. There must be some subtle toxin at work. In civil life cases of acute nephritis not infrequently go unrecognized. A mild case presents very few subjective symptoms, and the only objective sign—a slight smokiness of the urine—may very easily escape the victim's attention. There is no initial rigor and the temperature may not be raised above normal. When this occurs in the trenches, it is scarcely surprising that no diagnosis should be made.

There is much confusion between the terms nephritis and Bright's disease. The latter, which has now served its purpose, should be altogether discarded. Albuminuria and dropsy were, of course, well known before Bright's day, but to him belongs the credit of being the first to connect these symptoms with the inflammatory condition of the kidneys which be found in the *post-mortem* room. "Bright's disease" was then either acute or chronic, and every condition which was accompanied by albuminuria and dropsy, even morbus cordis, was called Bright's disease, though not by Bright. We have traveled a long way since then, and we have learned to differentiate betwen the various affections which used to be grouped under that heading. We are even beginning to understand albuminuria.

It was not until quite recently that the suggestion that albuminuria might possibly be physiological was not regarded as a dangerous heresy. The discovery of the albuminuria of healthy young men, as it proved to be transitory and neither denoting nor presaging any renal abnormality, sufficed to convince the thinking few. But so firmly rooted was the idea of the presence of albumin in the urine being necessarily pathological that even to-day albuminuria is regarded, probably by most medical men, as a sign of very evil omen, no matter what the circumstances may be which accompany its appearance. And yet in many, a great many, cases it is in reality perfectly harmless.

Martin and others have told us that albuminuria is the rule with new-born babies. The amount of albumin is at first abundant, but it gradually diminishes until by the fourteenth day it has completely disappeared. Adolescents, who are apparently in good health, are subject to what is described as cyclical or postural albuminuria —a phenomenon which is now admitted on all hands to be devoid of pathological significance. Even among adults of mature age, military men and doctors careful observations revealed a considerable number of cases of cyclical albuminuria, unaccompanied and unfollowed by any morbid tendency. Moreover, young adults who are in what may be called superlative health, readily develop albuminuria as the result of fatigue. This has been conclusively shown by W. Collier, of Oxford, who examined young men in training for races, men who may therefore be assumed to have been in a high state of physical and physiological efficiency. In a very large percentage (from 60 to 100) of these young men, albumin appeared in the urine a short time after hard exercise, to disappear again after a period of repose.

According to Playfair, albuminuria occurs in 20 per cent. of pregnant women after the third month, and in a much larger percentage of primiparæ. Some of these cases, it is true, progressed to definite renal disease, but that was surely preventable. The vast majority suffer no inconvenience from the occurrence of the symptom.

Apart from states which are admittedly physiological, albuminuria is liable to be provoked in a number of conditions which, though abnormal in some degree, do not reflect any blame whatever on the kidneys. In mitral disease it is the rule rather than the exception; in injuries to the spinal cord it is very common; it may be present in chlorosis, in Graves' disease, in myxedema, and even in slight degrees of thyroid insufficiency; it is quite common and is to be expected in tonsilitis, even when this is not diphtheritic, and it is not infrequently present in some forms of functional dyspepsia; it is a common finding in cases of hepatic congestion from any cause, it is present in almost every case of toxic pyrexia, and it is by no means uncommon in migraine and epilepsy. At the menopause it is especially liable to occur, and many is the lady who has been frightened out of her wits by the conscientious practitioner's discovery and his gloomy interpretation thereof.

Among pulmonary conditions it is found as an early sign of tubercle; it is common in asthma, and by no means uncommon in the bronchitis of emphysematous patients. And let it not be forgotten that a very large number of drugs will give rise to albuminuria; such as cubebs, copaiba, turpentine, mercury, morphia, quinin, arsenic and phosphorus. These are among the most important but they by no means complete the list. Passing abnormalities any where in the urinary passages may provoke the symptom. An excess of oxalates in the urine will produce it; so will the irritation of small calculi or sand. A slight cystitis is by no means an uncommon cause, and an exceedingly common one is the presence of spermatozoa in the urethra. Altered blood states, as in the essential anemias, are almost always accompanied by albuminuria.

It seems scarcely credible that a symptom which is common to so many diverse conditions, both physiological and pathological, should so long have succeeded in masquerading as necessarily connoting renal disease. And yet it is within the experience of all of us that people have been and, alas! are still being, refused for life insurance and otherwise condemned as damaged individuals merely because from some of the above-mentioned causes, a little albumin has been found in their urine. It would be just as logical—it would, indeed, be more reasonable—if dyspnea were regarded as necessarily indicating pulmonary or cardiac disease. Dyspnea is in many cases very significant of such disease, but inasmuch as we have all of us become very breathless hundreds of times in the course of our lives without any untoward effects, we have acquired some sense of perspective in the matter. It would be a good thing if the presence of albumin in the urine could be manifested by some sign equally gross and obtrusive. We should then come to realize how frequent an occurrence it is, and how seldom it indicates anything more serious than a passing change of pressure in the blood-vessels of the splanchnic area.—(*Medical Press*, Aug. 25, 1915.)

Kassowitz states that one-third of all syphilitic infants die in utero, and of the remaining, 35 per cent. succumb during the first six months of life.

Urology

Obstruction at Neck of Bladder.

B. Tenney of Boston says:

Prostatic obstruction without enlargement may be due to—

1. Dense layer of new-formed connective tissue below the mucous membrane and infiltrating the internal sphincter—the fibrous ring.
2. The same process with chronic inflammation of the submucous gland tissue—the bar.
3. Hyperthrophy of submucous gland tissue involving the suburethral or subtriagonal groups or both—the hypertrophy in miniature.
4. Connective tissue replacing the glandular below the internal sphincter muscle—the fibrous prostate.
5. Congenital malformation.

Clearly, the conditions here suggested do not call for the same treatment. When the obstruction is small and strictly confined to the region of the internal sphincter, it is possible to get good results by methods that do not apply to the general condition which we know as the small fibrous prostate. In this condition we are practically dealing with scar tissue which must be stretched or cut through or removed as completely as possible. Connective tissue with its tendencies to contraction, reproduction, and occasional hypertrophy is poor material for surgical work. A result which is satisfactory at first may be quite the reverse after a few months of neglect; and permanently good functional result, whatever the operation, depends on the patient's faithful attention to his sounds.

Of the sixty-four cases reported to Tenney, forty-six were operated on through the bladder and thirteen through the perineum. There were four deaths, three of which followed perineal section; but some of these cases were attempts to remove the hard fibrous prostate, and this operation is often long and difficult. They cannot fairly be compared with a list of cases whose lesions were confined to the region of the internal sphincter. The results of the operative treatment of these cases were satisfactory in forty-seven, unsatisfactory in eleven, death in four, not given in two cases. Unsatisfactory results followed the perineal approach seven times, the suprapubic operation three times, and the Bottini cautery once.—(*Surg., Syn. & Obst.*, Aug., 1915.)

Calculus in the Ureter.

J. E. Adams discusses calculus in the pelvic portion of the ureter. He says the surgeon should feel humiliated if, after appendicectomy the patient passes a calculus *per urethram*. Impaction of calculus in the last inches of the ureter gives rise to irritation of the bladder. There is frequency of micturition, pain throughout the whole length of the urethra, painful emissions and hæmospermia. Pain is the most constant symptom, and may be pelvic or abdominal. Attacks of pain of the nature of colic, associated with vomiting, sweating and hæmaturia are not uncommon. Fever is present at times.

The ultimate diagnosis usually rests with the result of *x*-ray examination. It may be possible to palpate the calculus, either per rectum or per vaginam. Obstruction to the passage of a ureteric bougie may assist diagnosis. In differentiating between calculus and phleboliths the shape will usually lead to a correct diagnosis. Calculi are frequently bean-shaped, and pointed at one extremity, whereas phleboliths are spherical. In regard to treatment, the author finds Judd's operation of exposing the ureter by the supra-pubic route highly satisfactory. After the extraction of the stone, he sutures the small incised wound in the ureter with fine catgut at right angles to the long axis.—(*Lancet*, April 24, 1915.)

Starch Agar a Useful Culture Medium.

Capt. E. B. Vedder, U. S. A., has found the above medium preferable to the commonly used salt free veal agar for the growth of gonococci. A beef infusion is prepared as in making broth (meat extracts do not give good results). To this 1.5-1.75 per cent. of agar is added. No peptone or salt is used. The mixture is cooked, clarified and filtered as in preparing ordinary agar. It is then neutralized so that the final reaction will be from 0.2-0.5 per cent. acid to phenolphthalein. Ten grams of commercial corn starch are added for each liter of the medium. The corn starch is usually ground up with a little agar in a mortar to avoid lumps. After adding the corn starch the mixture is boiled for a few minutes, tubed and sterilized at not more than fifteen pounds pressure.

The medium is slightly clouded but is simple, inexpensive and has many other advantages. The growth of gonococcus organisms upon this medium is profuse after twenty-four hours and increases up to three or four days. These cultures are suitable for the culture of antigen and may be kept alive in the tube for over twenty days. This medium may be melted and used for plating out cultures, and it is valuable for routine use with many other organisms.—(*Jour. Infec. Dis.*, May, 1915).

Vesical Calculi in Young Boys.

W. E. Dunn records two cases of vesical calculi in male children. The first patient was 2½ years of age. He opened the bladder by the supra-pubic route, but even after this the stone had to be broken up before it could be removed. It occupied practically the whole bladder. In the second and similar case the patient was a boy of three.—(*Lancet*, April 10, 1915.)

Ureteral Stones—The Technique of Their Removal by Cystoscopic Methods.

In a paper on the above subject read before the Southern Surgical and Gynecological Association, December 16, 1914, Bransford Lewis presented the justification and the technique of the removal of uretral stone by cystoscopic methods. After calling attention to the fact that usually no middle ground is taken by the surgeon between the expectant plan and that of open operation, the author claimed that cystoscopic methods should be tried in all cases in which there was any promise of success. While ordinarily successful and satisfactory, open operation possessed certain militating features that were of decided moment. They were often difficult of performance, and did not always lead to success either immediately or later. This was proved by reports emanating from many of the leading operators of the country. Tenny was quoted as ascribing from 15 to 20 per cent mortality to open operations for the removal of ureteral stones. This risk should be avoided if possible.

Methods of removal less hazardous than open operation have been evolved and developed to tangible and serviceable realities; and have proved their efficacy in a large number of instances, as recorded by Howard Kelly, Braasch, Young, Schmidt, Kreissl, Casper, Robert Bryan, Harvey Moore, Ashcraft Moschowitz the author and others.

In 1904 Lewis had presented a formulated plan for such work, together with instruments appropriate for carrying it out. While formerly his instrumental equipment consisted of two different kinds of cystoscope—one, the universal, for observation and catheterization; another, an operating cystoscope for direct ureteral attack—the present instrument, developed during the past year combines all of these in one universal and operating cystoscope, which was demonstrated to the members. Pertaining to it were several auxiliary instruments—forceps, dilators, scissors, etc.—which amplified the ability of the operator in the direction desired. The shafts of all these instruments are now made flexible, to permit of their use at an angle, as well as by the more direct method; also permitting of the threading of the curves of the ureter to a greater distance than was permitted by the straight instruments with fixed shafts.

With stereopticon slides the author illustrated the application and methods of using these in connection with ureteral strictures and impacted stones as located in the different parts of the channel; and also depicted the steps of ureteral catheterization as employed by him,

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The Value of Anoci-Association in Prostatectomy.

S. H. Harris gives this technique in suprapubic prostatecomy. After the preliminary injection of morphin and hyoscin, the bladder is washed out, and 2 oz. of a 5% alypin solution introduced. Light, open ether or gas and oxygen anesthesia is then induced. Local infiltration of the operative field is then carefully proceeded with, as though no general anesthetic were being given. Skin, fat, aponeurosis, muscles and bladder wall are successively infiltrated and incised. The prostate is then exposed, and its capsule thoroughly injected with the solution and the enucleation completed.

A solution of 1 in 400 novocain is used for the infiltrations, to which may be added with advantage potassium sulphate (0.4%) and 12 drops of suprarenin to each 100 c. cm. (Gray; *British Medical Journal*, August 22, 1914, p. 351.). The action of the novocain is thus intensified and prolonged for several hours.

With this technique he has performed 12 prostatectomies. The results in this series of cases, few though they may be, quite bear out all that the authors claim for the method, *viz.*, absence of shock and post-operative pain.—(*Med. Jour. Australia*, June 15, 1915).

Acute Torsion of the Right Interabdominal Spermatic Cord Stimulating Appendicitis.

Ralph C. Cupler, of Chicago, recently had occasion to witness an interesting case which presented the symptoms of acute appendicitis or torsion of the right interabdominal cord.

The patient, a strong adult male, entered St. Anthony's Hospital at 8 a. m. November 1, 1913. He had had no previous abdominal symptoms. His present trouble began about 1 a. m. on November 1, 1913. He presented the classical syndrome of an acute adbominal crisis. Examination showed the absence of the right testicle. It had never appeared in the scrotum or inguinal canal. Pain came on suddenly, was severe, and was followed by vomiting, rapid pulse, tenderness and rigidity in lower right abdominal region, elevation of temperature, and a leucocyte count of 18,000. Differential white count was not recorded.

The diagnosis of acute apendicitis or torsion of the right interabdominal spermatic cord was made at 8 a. m. the following day. The abdominal cavity was opened by retracting the fibers of the rectus muscle inward. The testicle was located midway between the umbillicus and the anterior superior spine of the ilium. The testicle moved freely, being suspended by the spermatic cord. The cord contained two complete revolutions and by reason of this had occluded the blood supply to the testicle. The structure involved showed that the process was acute, and the testicle presented the appearance of gangrene. The cord and testicle were removed. The appendix was normal.

This condition should be considered in the diagnosis of acute appendicitis.—(*Surg. Gyn. & Obst.*, August, 1915).

Report of 4,000 Rectal Endoscopic Examinations.

After making 4,000 endoscopic examinations of the rectum, A. Foges (*Wien. med. Wohn.*, 1914, No. 40), is convinced that the method is absolutely without danger, as not a single injury resulted. All accidents heretofore reported cannot be laid to the method. He performed the examinations with the patient in the high lateral, prone position, with the pelvis elevated. Anæsthetics were never needed. The method is valuable primarily in the early diagnosis of cancer, which frequently grows insidiously and without pain. A diagnosis of cancer can be suspected frequently if, through the stenosis, mucus and thin brown-red strands of fæces are passed. In 72 cases polyposis was found. Inflammatory changes in the lower bowel are important findings for the internist; above all proctitis and sigmoiditis ulcerosa and hæmorrhagica. A negative finding is also important in carcinomophobic cases.—(*S. G. & Obst.*)

Nephritic Infection.

A form of acute hemorrhagic nephritis, occurring as a result of focal infections and usually following acute tonsilitis, is described by C. G. Grulee and F. W. Gaarde, Chicago. During the past year and a half they have observed cases of hematuria which seemed to have a distinct sequence of symptoms and a clinical history and laboratory findings that might be regarded as distinctly significant. Six cases are reported. In every case the child has had a prior attack of tonsilitis or like infection of the nasopharynx. In two of the cases the culture from the urine was negative, in two of the others the *Staphylococcus albus* was found, one a staphylococcus producing slight hemolysis, and in the other a *Staphylococcus albus* and a *Streptococcus hemolyticus*. The blood culture in one instance showed an organism similar to that found in the urine. When taken the organisms obtained on cultures from the throat showed a great similarity to those obtained in the urine. Five of the cases occurred in boys varying in age from 2 to 6 years, which is regarded as significant. With the exception of one case the tonsilitis preceding the condition had subsided, preceding the hematuria six or seven days. The latter came on suddenly with albumin and casts, and generally showed a tendency to rapid remission. The temperature was high and irregular in the acute stages; the amount of prostration was surprisingly slight. There was no edema except in the mastoid case, and in none a history of giving of drugs that might cause bleeding. That it was not a sequel of a mild case of scarlet fever, the lack of edema or pallor, or anything like uremia and no cases of scarlet fever, developing in the associates, would seem to indicate. Little is said concerning treatment, but it was thought wise to give urinary antiseptics on account of the organisms in the urine. Fisher's solution was made use of in two cases. In one case the effect was very slight, and in the other the urine was already clearing up before it was given. Removal of a focus of infection brought about excellent results.—(*J. A. M. A.*)

Public Health

Protective Goggles for Workmen.

Many workmen are exposed to excessive glare and heat; others work near a source of light rich in violet and ultra-violet rays. They are liable to a characteristic type of cataract or to a painful form of conjunctivitis—"ophthalmia electrica"—which seems to be identical with snow blindness. Sir William Crookes has shown by spectroscopic examination that ultra-violet rays are not emitted from the surface of molten glass, and also that *x-rays* are absent. It is in consequence generally held that bottle-maker's cataract is caused by the infra-red rays which are present in excess in the light from the glass furnace. Ophthalmia electrica and snow blindness are certainly caused by ultra-violet rays. These do not penetrate beyond the lens, which absorbs them, and fluoresces.

The choice of suitable goggles for a workman presents a complicated problem which must be solved by a scientific consideration of the physical characteristics of the light to which he is exposed. For some purposes we require a glass which will exclude heat and glare; for others the elimination of ultra-violet radiation is demanded. A great deal of work has been done in investigating the matter, with the object of producing glass which will effectively filter out any desired rays. Mr. Lackeisch, the physicist to the Hela Research Laboratory, Cleveland, O., published an account of his researches in this field in 1914. He examined with the spectroscope various specimens of glass, using a variety of sources of light, including the iron arc. In many trades, such as electric welding, it is necessary to exclude ultra-violet rays from the eye and simultaneously to reduce the glare to a safe degree. By so doing the welder is shielded from conjunctivitis and from glare blindness, which, typically in "eclipse blindness," is characterized by a positive central scotoma—scotoma helieclipticum. As a general solution of this problem, Lackeisch proposes to combine a yellow-green glass totally absorbing ultra-violet rays with a shade of smoked neutral glass sufficiently dense to reduce the brilliancy of the light to a safe degree. Euphos glass has a great reputation as an ultra-violet filter, and was used by Shackleton and Amundsen in their Antarctic expeditions. Lackeisch found that euphos glass transmitted a large amount of ultra-violet rays. Amber glass is an effective filter of these radiations, but it modifies color perception to such an extent that men who have to temper steel by quenching when it exhibits a certain hue are deceived and are therefore unable to wear this glass.

Fortunately the researches of Sir William Crookes have given us a glass which is very satisfactory as a filter of noxious light. He conducted a series of laborious experiments to discover a glass which would prevent bottle-makers' cataract, by absorbing the infra-red rays. His work is published in *The Philosophical Transactions,* vol. 214, Series A, 1914. In order to examine the question of heat absorption, he passed the light through a plate of biolite and received the heat rays upon a special thermometer and a radiometer balance. The metals—cerium, chromium, cobalt, copper, iron, lead, manganese, neodymium, nickel, phraseodymium, and uranium—were in turn incorporated with a soda flux, and the resulting glass examined. Cerium was found to be valuable, affording a colorless glass with a high power of absorbing ultra-violet rays. Ultimately a series of glasses were obtained whose characteristics were classified under the heads: Infra-red absorbing power, impermeability to ultra-violet rays, and power of light transmission. From these specimens it ought to be possible to choose a glass suitable for any form of goggles. The whole output of an English firm which utilizes the formula of a British scientist has been secured by an American company, which controls the output.—(*Brit. Med. Jour.,* Aug. 28, 1915.)

Vaccination in Austria.

The epidemic of small-pox in Austria has led to an organized agitation for the introduction of compulsory vaccination. Hitherto this agitation has not convinced the authorities that the populace would submit to compulsory vaccination, but where legislative measures might have failed, the presence of small-pox has induced great numbers to submit voluntarily to vaccination. Ernst Mayerhofer states, as the result of investigations on the frequency of vaccination among children in Vienna, that in 1914 of the children in the second to the fifth year inclusive 82.4 per cent. were unvaccinated. Between the sixth and seventh years there was a sudden rise in the number of vaccinated children, and between the seventh and fifteenth years as many as 86.3 per cent. were vaccinated. Down to the end of 1914 it was as rare to find an unvaccinated adolescent among the working classes as it was to find a vaccinated infant. Towards the end of 1914 and early in 1915 the spread of small-pox evoked a great demand for vaccination. The public was urged by the medical and lay press not to neglect vaccination, with the result that during the first quarter of 1915 the proportion of vaccinated children under school age was 56.7 per cent. as compared with 17.6 per cent. for the same age in 1914. Of the children between the ages of 7 and 15 years, 96.2 per cent. were vaccinated as compared with 86.3 per cent. for the same age in 1914. It has been estimated by v. Jaksch that 96.2 per cent. of the adults in Prague were vaccinated in the decade 1902 to 1912. Mayerhofer does not consider this percentage high enough, for the remaining 3.8 per cent. of the adult population is quite sufficient to feed the present epidemic indefinitely, especially as the unvaccinated belong to the lowest strata of society. Again, the popular practice of deferring vaccination till children have reached the school age or later is, he urges, a grave source of danger. In the absence of legislation, revaccination is commonly neglected, as the public is apt to overestimate the value of the first vaccination in early childhood. For these reasons Mayerhofer urges the necessity for compulsory vaccination, and argues that such a measure, so far from curtailing the liberty of the individual, would enable him to avoid the far stricter measures, including compulsory isolation, to which persons are subjected who have contracted small-pox, or are merely suspected of having been in contact with the victims of this disease.—(*Wien, Med. Woch.,* June 19, 1915.)

Sterilization of Water by Chlorine.

J. J. H. Nelson of England describes this apparatus for cleansing water. It is composed of two bottles, one of about thirty ounce capacity, the other holding about two ounces. The larger is fitted with a double perforated stopper through which are passed two glass tubes, one short, the other reaching nearly to the bottom. Both are supplied with stop cocks. The long tube is connected with a short tube inserted through a stopper in the small bottle. Twenty ounces of water are placed in the large bottle and two drams of concentrated hydrochloric acid in the smaller along with fifteen grains of powdered potassium chlorate for the liberation of nascent chlorine and chloric dioxide. These gases are

passed into the water in small amounts at a time with frequent shaking. This yields a solution of the two gases of such strength that when one ounce of it is added to five gallons of water, a concentration of chlorine gas of one in 500,000 is obtained.

Repeated experiments with naturally and artificially contaminated water have proved that an exposure for half an hour to this concentration of chlorine suffices to sterilize it completely of all pathogenic organisms, particularly of the fecal group. The entire process consumes little over half an hour, and can be easily carried out effectively even by an inexperienced person. The amount of chlorine in the finished water does not impair its palatability or its potability. If the water is very turbid, it can first be cleared by sedimentation over night with alum; it is then treated with the chlorine solution. An outfit has been designed which weighs only twelve pounds and which can be easily carried on a man's back. This outfit contains sufficient material to sterilize 19,800 gallons of water without replenishing, or enough to give each of 200 men a gallon of drinking water a day for seven weeks.—(*Brit. Med. Jour.*, May 8.)

Control of Communicable Diseases.

E. R. Kelley, of the Massachusetts State Board of Health, in urging the better control of communicable diseases says the principal factors in the successful solution are:

1. A well working system of prompt reports of all communicable diseases to the health authorities from the physicians.

2. A carefully worked out routine system of study, and prompt investigation of all outbreaks, by the health authorities; in other words, health authorities that know their business and are "on the job," with reasonable, but not necessarily lavish, financial support behind them.

3. Regulations for the isolation and supervision of persons ill with contagious diseases, based upon both common sense and scientific knowledge and the principle of maximum protection to the public with minimum inconvenience and hardship to the patient and family.

4. The safeguarding of certain important channels of disease transmission, especially the water and milk supplies.

5. The widest possible utilizing of certain public health machinery designed expressly to combat communicable diseases.

Under this heading would come:

(a) The public health laboratories—whether research laboratories where new knowledge of the nature of contagious diseases is constantly being sought and found; or diagnostic laboratories, where the practicing physician and the officials of boards of health can have the correctness of their diagnoses verified, or determine under what conditions it is safe to release quarantine restrictions; or laboratories where antitoxins, vaccines, and other preventive and curative sera are prepared and distributed.

(b) The dispensary and hospital for contagious diseases. Their obvious importance and significance need no special mention before this gathering.

(c) Public health nursing organizations.

(d) School medical inspection, so called; or, better, hygiene school supervision.

6. The greatest of all forces at our disposal, that of education along public health lines, especially education of children and mothers.

With the exception of the ever present possibility of a satisfactory solution of the milk problem, it would seem as if official action had gone about as far as it can in the abolishing of certain infectious diseases in Massachusetts.

Typhoid fever, scarlet fever, measles and whooping-cough can certainly be reduced still further in this State, but it must be largely through educational means through the intelligent co-operation of all the citizens of the State.

Our public health nurses, our system of school hygiene, our boards of health, our whole machinery for health protection needs to be adjusted to this one concept. The greatest need in public health to-day is education along sanitary lines.—(*Am. Jour. Pub. Health*, July, 1915.)

A Method of Rating Milk Dealers.

The figures given below illustrate a rather unusual method of rating retail dairymen, which is used at Dayton, Ohio. This consists in combining the ratings on several items, quality, bacteria, content, and sediment and also on dairy and of milk plant inspection.

Every three months a list of dairymen is made up according to locality, the one with the highest grade being placed first and so on down the list.

The key is as follows:

QUALITY.

Good	25 points
Fair	20 points
Medium	12 points
Poor	5 points

BACTERIA.

Below 10,000	25 points
10,000 to 100,000	20 points
100,000 to 500,000	15 points
500,000 to 1,000,000	10 points
Above 1,000,000	0 points

SEDIMENT

No sediment	25 points
Small amount	20 points
Medium amount	15 points
Considerable amount	10 points
Large amount	5 points

MILK PLANT AND DAIRY SCORES

90 to 100%	25 points
80 to 90%	20 points
70 to 80%	15 points
60 to 70%	10 points
Below 60%	0 points

The following specific cases well illustrate the working of this plan:

PASTEURIZED MILK

Name	Qual.	Bact.	Sed.	Milk Plant Score	Total score
A	20	20	20	23	83
B	15	22	25	20	82
C	15	15	20	20	70

CERTIFIED MILK

				Dairy score	
A	20	25	25	25	95
B	25	20	23	25	93
C	20	20	18	15	73

RIVERDALE

Name	Qual.	Bact.	Sed.	Milk plant score	Dairy score	Total score
A	20	20	20	20		80
B	10	20	20	21		71
C	12	15	10		15	52

—(*Am. Jour. Public Health.*)

Although blushing is frequently dependent only on the nervous system it may be produced artificially by the inhalation of nitrite of amyl. This drug has a double action in dilating the vessels, for it acts first upon the dilating centre in the brain and then upon the peripheral vessels themselves.

Obstetrics and Gynecology

Caesarean Section after Ventrofixation of the Uterus.

G. Nyström records the case of a married woman, 38, on whom centrofixation of the uterus was performed in March, 1913, for retroflexion and endometritis. At this operation the right ovary, which was surrounded by adhesions, was removed. The anterior portion of the fundus of the uterus was secured by a silk suture passing through all the layers of the abdominal wall. The serosa of the uterus was not removed at the point of fixation. The patient was discharged on March 28. Her last menstruation occurred in April of the same year. On February 3, 1914, regular labour pains began, and on the following day, at 6 p. m., the liquor escaped, and the pains became much more severe. About six hours later the cord was found prolapsed, and could not be replaced. On February 5, at 8:30 a. m., the patient's general condition was satisfactory, the head was freely movable in the pelvis, the back of the fetus was directed towards the right, and the limbs towards the left. The fetal heart sounds were 130, and only just audible. The external os, which admitted three fingers, occupied a high position in the back of the pelvis; and while its posterior border was thin and yielding, its anterior border was thick and very rigid. The prolapsed cord was pulsating, and all attempts to replace it failed. The risks involved in the use of forceps at this stage were too great, and the chances of rupturing the uterus by performing version were considerable.

As reposition of the cord was impracticable, and the fetal heart sounds were unsatisfactory, Cesarean section was undertaken for the sake of both mother and child. At the operation, which was performed on February 5 at 11 a. m., the tubes and round ligaments were found attached low down to the anterior surface of the uterus. This was secured to the anterior abdominal wall by a wide, short adhesion. The hypertrophy of pregnancy was practically confined to the back and fundus of the uterus. It was opened in the middle line, and the incision was carried through the back and fundus of the uterus, where its wall was almost as thin as paper, being only 2 to 3 mm. thick. There was no hemorrhage, and the fetus was removed in a state of asphyxia, which soon passed off. The placenta was detached without great loss of blood from the upper right corner of the uterus. The patient made a satisfactory recovery. The author believes that the wide, short adhesion between the uterus and the abdominal wall must have been a sequel to injury to the uterus by forceps at the time of the ventrofixation, or it may have been due to a hemorrhage caused by the needle on which the silk suture was threaded.—(*Finsk, Laek. Hand.*, March, 1915.)

Normal Period of Gestation in Women.

Robertson, from a statistical investigation of 511 normal confinements of married women of the laboring classes in a maternity hospital in Adelaide, Australia, made out the following facts: 247 labors yielded male and 264 female children. The mean length of gestations yielding males was 282.5 days, with a probable error of + 0.55 days and a variability of 4.47 per cent., while the mean of periods of gestation yielding females was 284.5 days, with a probable error of + 0.57 days and a variability of 4.85 per cent. Hence the periods of gestation yielding females are longer than those yielding males, the probability of the truth of the conclusion based on these estimates being 142 to 1. There is but one, namely, the "normal," period at which the percentage of infants delivered by normal mothers attains a maximum. Subsequently to a very early period in the development of the fetus there is no evidence of a "critical period" in the intrauterine growth of man, such as occurs in the uterine growth of guinea-pigs.

The deviation of normal periods of gestation from the mean are fortuitous in origin. The chances are a million to one against a male child being delivered at the termination of an otherwise normal pregnancy before 224 days or a female child before 222 days after the onset of the last menstruation. Hence all seven months children (210 days) may legitimately be regarded as the fruit of pathological pregnancies. The length of the period of gestation is very much less variable in normal females than the weight of the infant which is delivered. From this fact it is inferred that the length of the period of gestation in normal women is primarily determined not by the fetal development, but by a maternal cycle of events which is to a considerable extent independent of the stage of development attained by the fetus.—(*Am. Jour. Obst.*, June, 1915).

Sarcoma of Both Ovaries in a Child of Three Years.

Double ovariotomy performed upon a child of 3 years for bilateral tumor of the ovaries, in October, 1912, led to a search of the literature for like cases by F. H. Smith and J. C. Motley. Bilateral involvement in young children is rare, only 6 cases being recorded: one each of dermoid at 11½ years by Legueu; carcinoma at 14 years by Kouznetsky; teratoma at 14 years by Kartuschanskaja; sarcoma at 13 years by Croom; sarcoma in a fœtus of 7¾ months by Doran; and carcinoma, at first exploration unilateral and at third operation three weeks later bilateral, in a child of 12 years by Martland.

The most complete compilation of recorded cases noted are: by Jochmann, 1898, who recorded 20 cases of solid tumors; by Hubert, 1901, recording 175 cases of cystic and solid tumors to the age of 17 years; and by Wiel, 1904 and 1905, recording 60 operated cases to the age of 10 years.

All strikingly agree as to the frequency of malignancy in children, varying in the several estimations between percentages of 31.8 and 34.2. Cystadenoma and embryoma are the most common tumors in childhood.

Post-operative mortality figures are unreliable because many must have died later from recurrences and metastases. The available figures indicate a death-rate of 50 to 60 per cent.

The case now recorded is that of a white girl of 3 years, ailing a month with vague abdominal symptoms, which finally culminated in symptoms of partial obstruction, and three days before the discovery of two solid, sausage-shaped abdominal masses. Operation was proposed to relieve the obstruction, the identity of the masses being missed because of the rarity of the condition. Solid tumors, supposed to originate one from each ovary, were removed, after separating intestinal adhesions.

Pathological study by Willis of Richmond, Va., and Louis B. Wilson of Rochester, Minn., showed the tumors to be parovarian embryomata with sarcomatous (mesoblastic) tissues predominating. Upon this finding recurrence was predicted. Five months later the child returned with a generalized abdominal sarcomatosis, with death following seven months after operation.—(*Surg., Gyn. & Obst. XX*, 1915.)

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Alcoholism and the War.

At the beginning of the European war the German Kaiser was credited with the declaration that the war would be won by the least alchoholized nations.

Assuming that the belligerent nations started on an equal footing with respect to alcoholism, it is interesting to inform ourselves as to the present use of alcohol by the troops in the field.

We have been able to glean a few facts which will throw some light on the question. Russia is declared to have barred all alcohol, although it is charged that various substitutes have been largely resorted to, and that many illicit distilleries have been detected. England gives her men rum and bitter beer. France does not permit the sale of absinthe, but allows the soldier fifty grams of rum daily and more wine than in time of peace. The free use of beer and wine is also encouraged by the Government in industrial establishments. Italy, Serbia and Montenegro place no notable restrictions on drink. Austrian soldiers are given daily a half liter of wine, and whiskey after forced marches. Twenty per cent. of the total output of the German breweries goes to the soldiers at the front, but it is to be borne in mind that the Government has curtailed the amount of grain used in brewing in order to conserve its cereals.

Charges and counter charges have been made as to the use of alcohol before bayonet charges and similar actions. The Germans have declared that prisoners taken by them in such circumstances have been intoxicated, and the same thing has been said about the Germans, of course. But that sort of thing, it seems to us, is of less pathologic consequence than the regular consumption of alcohol as a recognized daily thing.

Practically, it must be found that tobacco and alcohol allowances keep the soldier more amenable to control and contentment in the midst of hard, indeed frightful conditions. Something of the same sort must dictate the sexual privileges that are granted. If it is a fact that large bodies of men, drawn from the lower strata of human society, cannot be kept in the field under hard conditions unless alcoholized to a degree and sexually unleashed at times, it is the worst indictment of war that could be formulated.

The Proper Basis of Successful Public Health Work.

Surgeon-General Gorgas is to be highly commended for his continued insistence that the problem of tuberculosis can never be adequately dealt with until we have improved the fundamental economic conditions of the people. All public health work, for that matter, he has declared, waits upon this desideratum. Permanent health improvement can only be effected through improved living conditions to be brought about through increased wages. He considers "the greatest single factor in our present low standard of wages as compared with the cost of living to be the fact that so much of our land, which is the only true basis for taxation, is permitted to lie idle, or is only partially productive, because the man who improves his land is penalized by taxation, while the man who permits his to lie unimproved benefits through the penalties levied on his more progressive neighbor."

The increase of wages in the Panama Canal Zone, says General Gorgas, had more to do with the general health conditions on the isthmus than any sanitary measure employed there. The measures employed for the control of yellow fever and malaria and certain other diseases were responsible for the improved conditions, with relation to those particular diseases, but the reason why the Zone compares favorably with certain portions of the United States in healthfulness is that the living conditions of the workers have been improved by increased wages.

Here is an instance of a physician and a great executive who is also a seer and a social engineer. In his wisdom he has perceived a special significance in the Panama experience. In the light of this noteworthy demonstration the solution of our worst disease problems is clear to him. Would that it were clear to all!

Our Interest in Living Wages.

There are many employees in New York State receiving less than a living wage, and of course there are thousands more who receive barely a living wage and still others receiving but little more. The State Factory Investigating Commission found that fifty-three per cent. of all female employees of eighteen years of age or over in stock and sales received less than nine dollars a week. Nine dollars is the minimum living wage for a woman living independently. Out of 45,000 department store employees, there were 13,000 women eighteen years of age or over who earned less than nine dollars a week. Four thousand women of eighteen years and over employed in industrial lines were getting less than eight dollars a week, and averaged not quite six dollars a week. In half of the wage earners' families that were investigated there was no male wage earner. One-half of the people discovered in the investigation received less than enough to live properly and independently.

Parsons has reported that 403,991 persons were in poor institutions in 1913, or were receiving temporary relief, at a cost of $8,401,318, and that the number of such persons increased 24 per cent. between 1910 and 1913, while the expense of caring for them increased 37

per cent. In twenty years, while the population of the State increased 52 per cent., the charity wards increased 83 per cent., or from 175,341 to 325,653.

Such figures are of interest to the medical profession in three ways. First, we deplore the inhumanity of the situation; second, we know the relation that the insufficient wage bears to disease; and third, the presence of large masses of underpaid workers in the community means much economically to the practitioner.

Why Startling?

Dr. Eugene Lyman Fisk recently presented figures of a health survey of workmen before the American Public Health Association which were declared "startling" by the press. In the course of his survey he found forty-two per cent. of the workmen showing signs of arterial changes, thirty-nine per cent. showing evidences of kidney disorder, and three per cent. indications of organic heart disease. Sixty-eight per cent. showed some form of mouth infection, defective teeth, infected gums, and these two combined; five per cent. showed evidences of pulmonary tuberculosis; six per cent. malnutrition; fifty-one per cent. showed serious errors in diet; forty-five per cent. showed other errors in personal hygiene. Sixty-five and a half per cent. were found in need of some form of medical treatment or guidance, while but five and a half per cent. of this number were aware of their defects.

A most valuable survey, but why startling? How should it be otherwise in view of the low wage standards and the cheating of workmen out of their share of the profits of industry? The startling thing is that their condition is as good as it is.

No wonder that there is an I. W. W. movement, looking even beyond socialism. No wonder that a ruthless syndicalism seeks to despoil the master class of its ruthlessly gained holdings, not in the interest of everybody, as socialism would have, but in the interest solely of the working class.

So long as conservative society shies even at the single tax and decent wages, and philanthropists conmerely to "wipe away the pus" from the wounds of labor, the industrial unrest will go on cumulatively. A war for good health conditions would be as holy as any war could be.

"Sucker Lists."

A recent investigation by the Health Department disclosed the fact that "sucker lists" are still in vogue. Letters written to the manufacturers by sufferers from various complaints are bought by letter brokers. A manufacturer, particularly one just embarking in business, buys the letters at about five dollars a thousand, which is said to be the prevailing market price.

It appears that there are about a hundred drug manufacturers in the city who buy "sucker lists."

After the first of January such abuses may be expected to cease, if the proposed ordinance goes into effect. We presume that the compulsory filing of the working formula of an alleged remedy with the Health Department will accomplish the desired result and put an end to magical claims and the use of fake analyses furnished by unscrupulous consulting chemists.

Preliminary Announcements.

Nowadays, whenever an investigator publishes preliminary notes on some new therapeutic measure, particularly one directed against cancer or tuberculosis, the thing is taken up by the lay press and the author's cautiously expressed conclusions distorted to a point where it is made to appear that a cure has actually been discovered. This is most unfortunate, because an army of sufferers have their hopes raised, only, as a rule, to have them dashed later, when the new remedy falls into desuetude.

It is proper enough to publish preliminary notes in professional journals. But knowing the use to which the lay press puts these announcements would it not be just as well in these days of journalistic enterprise to withhold publication until the completion of researches? We are inclined to think so, although we are well aware that even the other avenues which we choose to utilize in giving notice to the profession of our work are also invaded at times by the newspaper friends. Do we not occasionally find the proceedings of our societies reported the next day in the papers, particularly if there has been a discussion on radium in cancer, or something of similar character? Still this does not happen so often as the appropriation by the newspapers of the published preliminary note.

Upon the whole we think the withholding of the preliminary note, in the form in which it commonly appears, to be advisable in present day circumstances.

Advertising Pays.

We agree with Mr. Moree, of the State Charities Aid Association, that a community ought to advertise its health work—if it is doing health work that is worth while and can show good statistical results. Money spent in putting health into the homes and the minds of people and in advertising the fact would surely be well invested. As you sail pass Yonkers you read a sign which is so huge that you can't miss it on which the name of the city and its population appear—YONKERS: 90,000. But the sign states nothing besides this. Suppose Yonkers could advertise the lowest death-rate in the Hudson valley—would not people be attracted to Yonkers? But of course such methods would be more effective in younger and less well known communities. The point is that public health is purchasable, and that after it is secured the fact can be turned to economic advantage. Community health pays in efficiency, in happiness, and in municipal growth of the right sort. If people go to a town because it is healthful and because it enforces good conditions, then it is to be presumed that such enlightened and desirable citizens are going to help further the local government in its hygienic and sanitary ambitions.

What Hospitals Are For.

Hospitals are for the treatment of the sick, irrespective of race, creed or *financial status*. If a poor person is really in need of hospital treatment he ought to get it at practically any hospital. But in our private hospitals compensation is sought for, either from the patient, his relatives or friends, or the municipality. What is money donated to hospitals for, and what is the Saturday and Sunday Association collections for, if not for the care of any sick person in need of hospital treatment? Practically, however, it is all but impossible to get a poor man into a private hospital unless he is acutely ill, in other words in an emergent condition. It is true that he can go to a public hospital, if there is room for him, but that is an unfair shifting of the burden. There must be many sick people making shift in their homes who could be receiving proper care in hospitals if charity were more in evidence. There would be a more generous support of our charities if it were not for the false representations of which many potential donors are becoming increasingly cognizant.

Miscellany

CONDUCTED BY ARTHUR C. JACOBSON, M. D.

Social Diagnostics.

A Medical View of So-Called Feminism.

Is not the term feminism, as used, a misnomer? Would not neuterism be a better term for that which feminism is commonly supposed to connote?

If what goes by the name of feminism tends further to differentiate the sexes, say by intensifying what are universally regarded as feminine characters, then the name is appropriate. If, on the other hand, it declares that sex ought not to be considered in art, literature, science, business or politics, would it not seem to be opposed to such differentiation?

Is not the goal of the feminists, so-called, really neuterism, a state in which sex differentiation is to be obliterated as far as possible? How can such an "ideal" properly be called feminism?

If feminism is striving to place women upon exactly the same artistic, literary, scientific, commercial and political planes as men, leaving out the distinctively feminine, while yet not acquiring masculine characters, why is it so called? It is possible for women to cease in part to be women, but it is not possible for them to become men in any degree.

If women's attainment of the higher education and economic independence tends to result in fewer marriages, fewer children, lack of the maternal instinct, relative inability to nurse children, and lack of interest in the elementary sex impulse and purpose, and if these things are recognized as probable or inevitable accompaniments of the feministic program, why, again, is feminism so called?

Is is not a fact that the feminists, so-called, would abolish wholly the sex appeal in its age-long form or in any other form? Is it not a fact that in so far as sexual morality is concerned our leading "feminists" are more austere than the saints, more respectable than the angels, and that they have an instinctive aversion toward the woman who lives a full feminine life or who betrays an unholy interest in the possible whole of feminine life? Is it possible for them to comprehend a George Sand, assuming that they permit themselves to consider carefully the career of such a strange creature?

Does it not seem that the "feminist" is really at war with feminine women and with femininity itself, far more than she is at war with man and the man-made world? If she is at war with feminine women and with femininity itself, and if her ideal is an economically independent, industrially harnessed, capable in a man's way, sexually unappealing creature, why call her a feminist? Actually, her woman's sphere is man's sphere.

Should not the term feminism be restricted to the fullest exploitation of femininity as such, with all its special powers—equally great as the powers of masculinity—particularly in the sexual field, since feminism is not feminism which attempts to exclude, limit or ignore the sex's special functions? Feminism is not feminism which suppresses the sex instinct, which results in sterility, and which presents the child which may happen to be born with a dry breast. How can a woman call herself a feminist to whom the whole gamut of sex is a nightmare, and to whose mind the cultivation of the art of love is a sort of crime? Her sociological "mothering" of the world's children has no essential bearing on the point at issue.

There must be but few real feminists in the world. In place of such glorious figures, as complete in their feminine way as any men can be in their masculine way, we must face the prospect of a world peopled in large part by frigid, sterile, economically capable and academicised (not educated) neuters, akin to the workers set apart by certain departments of the insect world.

Such is the trend. The complete flowering of the feminine is a disreputable phenomenon and must not be. Very well, but for heaven's sake don't let's call what is in store for us feminism!

You may know a "feminist" by her adeptness in dodging woman's sphere. In fact, she can't even define that sphere and would brazenly challenge us to. What the "feminist" is really enamored of is neuterism and a neuter she should be called.

This article is concerned only with definitions, but it may not be very much out of order at this point to declare ourselves in favor of the fullest freedom for women in order that both neuters and true feminists alike may achieve natural and desired goals. The right to express one's self sexually or asexually should be unquestioned and unquestionable in a state of high civilization.

Hints for the Health Department.

We wonder how many children are vaccinated nowadays at the age of three months, which we believe was the rule many years ago. Would we not have fewer cases of tetanus and minor infections if the old rule were adhered to? The older child, running wild and in a hundred ways more likely to infect the vaccination wound, necessarily presents more complications. At the time of acknowledging birth reports the Health Department might suggest the advisability of vaccination at three months—if the point we make about the relatively less liability of the young child to infection is sound.

This matter of what the Health Department might do in a suggestive way reminds us of the old proposal with respect to the prevention of ophthalmia neonatorum, namely, that on every birth certificate the reporting physician should be required to state what prophylactic measure he employed. This simple requirement would undoubtedly do great good.

Adoption of the Unfit.

When people who wish to adopt children apply to the agencies which are engaged in the placing out of institutional charges, they always, so far as we have ever heard, insist upon picking out a "perfect" specimen. His ears must not stand out, the palatal arch must not be too high, and the nasal septum must be straight. An elaborate physical examination is made and the findings certified to by physicians attached to the institutions before the child is taken.

A few years ago a New York physician and his wife startled the community and furnished much newspaper copy because of their adoption of the worst specimens they could find.

Adoption as ordinarily carried out chiefly benefits those who adopt. The child is taken to serve selfish purposes. He is not adopted because of a burning desire to help some little man in the struggle of life.

It is altogether discreditable to society that the badly handicapped children are not sought after for adoption, improvement and perhaps restoration.

What wonders could be accomplished with sickly, poorly-conditioned children in good environments. And suppose they didn't improve, and had gross physical defects, well, wouldn't that be all the better reason for doing something for the Tiny Tims?

One Reason for Beer Drinking.

We were recently threatened with contamination of the city water supply by sewage from the Mohansic State Hospital. We expect to escape that menace, but there appears to be an unwillingness on the part of many people to drink the city water anyway. The workingman notices that the office staffs of corporations and of the municipality itself do not drink the city water, but are supplied with water from special sources. Naturally he reasons that if the city water is not good enough for these people it is not good enough for him. His substitute is beer. This is an unfortunate state of affairs, to our mind. What is said in favor of beer may be all right, but we know that there is but little moderation in drinking the stuff. A cigarette or two is not harmful—maybe beneficial—but we know that the cigarette smokers never miss a chance to light up, with the result that they smoke one or more packs a day in most instances. The same is true of tea and coffee drinking. These excesses characterize most users of beer, tobacco, tea and coffee, and in turn lead to sexual excesses, by reason of local stimulation and nerve demoralization, thus making a vicious chain.

The Burden of Contraception.

Nearly the whole brunt of contraception is made to lie on the woman. She is sterilized, douched, fitted with mechanical appliances, aborted, and cheated of her climax in intercourse through withdrawal or the wearing of "mackintoshes" on the part of the male.

It would be a fine piece of consideration if some of this burden were taken off her. But we doubt if we shall ever hear of any member of the male sex submitting himself to sterilization, now a simple office operation which can be done under local anesthesia. We are often solicited to "turn the womb," whatever that is, but no one has ever asked us to tamper with his precious vas deferens.

Fat Deficiency.

Thin, poorly conditioned children, and for that matter skinny adults, can as a rule be easily and rapidly fattened up by cream and milk feedings in addition to regular diet. Fat starvation in these cases responds better to cream than to any other measure that we know of. The results are simply marvellous, and we wonder that such a simple remedy is neglected in favor of proprietary junk and so-called tonics. We have seen a thin girl gain seven pounds in three weeks on four ounces of cream in a pint of milk daily, taken in three parts at meals. It would be interesting to see this mode of feeding tried out on a large scale in some institution for children in cases presenting fat deficiency. In private practice the results have been startlingly successful.

The Charm of Mystery.

It is said that the absence of mystery in the modern practice of medicine is what is driving people to faith cures. A clever writer recently said that "it is extremely annoying and wearing to the nervous system to be as intelligent as the modern physician assumes you to be."

If there is anything in this, our campaigns of education will have curious and awful results, instead of doing good. To tell the truth, we have always felt uncomfortable about medical education of the public. The most intelligent laymen we know get the oddest kind of notions through this very "education."

Of course, we have definitely adopted the educational policy—are absolutely committed to it. But we do know that people are becoming more and more interested in freak schools and systems; that is going along with the medical education.

By the time the public is fairly well educated it would seem as though there might be nobody left to complete the education.

Is the Lack of Genius, Rather than Its Possession, Abnormal?

The commonplace man is rated as normal, the genius as abnormal. We have never been wholly able to see the rationality of this division. To us it seems arbitrary and probably invalid. The Emersons and Edisons, we should say, possess minds typifying what human minds ought to be. The rest of us are subnormal. We are astonished when anyone comes along with a really good, worth while brain, and have thoroughly persuaded ourselves that there is something abnormal about the phenomenon. On the other hand, we insist that the man of quite mediocre mind is the normal type. Why shouldn't our conception of the normal mind be one of large potentiality and creative power? Why is a man normal who never betrays any large powers of mind?

Teaching of Hygiene.

M. J. Rosenau, Boston, says it may surprise some to learn that hygiene is included as a major subject in the curriculum of only three medical schools in this country, the University of Pennsylvania, the University of Michigan and Harvard. The teaching of hygiene is becoming increasingly difficult owing to the widening of the subject, and it has been necessary to establish special schools for the training of hygienic experts for health officers. Sanitation and hygiene has become a separate profession. At Harvard, the teaching of hygiene consists of lectures and demonstrations, laboratory work, sanitary excursions, and sanitary surveys. The required course comes in the second year of the medical curriculum, and in addition a fourth year, elective, is offered for those who desire to go further into some phase of the subject. The backbone of the course is the laboratory work and the sanitary survey. This last was first used in the School of Health Officers of Harvard Technology and was later introduced into the course of preventive medicine and hygiene of the Harvard Medical School. Each student in medicine is required to make a sanitary survey of some city or town and submit a report. This must include collection of data, interpretation of the facts, and criticisms and recommendations. The outline which is placed in the hands of every student is given in the article. Boston is a good place for an exercise of this character, there being fifty-two cities and towns within fifteen miles of the state house. Students are encouraged to select small communities and, if possible, their own home town. Some students prefer to make the survey during their vacation. No special instructions are given, but he is placed on his own initiative. He is simply advised to get acquainted with the town and some of its people, find out something of its history, geology, geography and history and then go into details. The students have generally found the time and some of their reports are splendid contributions, and often enlivened with photographs. Some of them have carefully prepared charts and some have judicious summaries and well-considered criticisms.—(*J. A. M. A.*)

Migrating thrombophlebitis may give no symptoms, the signs referable to the deep vessels being of most importance.

The American Association of Clinical Research

JAMES KRAUSS, M. D., Permanent Secretary and Editor.

Election of Officers.

The following officers for 1915-1916 were elected at the seventh annual session of the American Association of Clinical Research held at Philadelphia on September 23-25, 1915:

President, Daniel E. S. Coleman, M. D., New York; First Vice-President, Wm. Benham Snow, M. D., New York; Second Vice-President, Leon T. Ashcraft, M. D., Philadelphia; Secretary-Treasurer, James Krauss, M. D., Boston; Registrar, Thos. D. Crothers, M. D., Hartford.

Research Committee—Doctors Wm. A. Pearson, Philadelphia; Philip Rice, San Francisco; F. C. Askenstedt, Louisville.

Educational Committee—Doctors G. Betton Massey, Philadelphia; H. H. Biedler, Baltimore; F. H. Blackmarr, Chicago.

Journal Committee—Doctors O. R. von Bonnewitz, New York; L. K. Hirshberg, Baltimore; E. Weldon Young, Seattle.

Membership Committee—Doctors A. W. Yale, Philadelphia; C. Winfield Perkins, New York; R. M. Griswold, Kensington, Conn.

The next place of meeting will be New York, in the third week of September, 1916.

EXERCISE, WITH PARTICULAR REFERENCE TO THE EXPECTANT MOTHER.

B. F. ROLLER, M. D.,
New York.

Gentlemen: I am pleased to consider the subject of exercise with reference to the mother for the following reasons:

In the first place nothing could possibly be of greater importance to society than the expectant mother and nothing is so vital to the success of a physician in practice as the manner in which he deals with that member of society.

In the second place, there is nothing in the curriculum of medical science about which the average good physician and obstetrician knows so little. This is true as applied to cases of all kinds, but especially true in cases of pregnant women. The average good physician for instance, knows a few things, more or less, about the physiology of exercise. He knows that exercise in the ordinary meaning of the term means the contraction of muscle in response to stimulus, either chemical, mechanical, thermal, or electric, and that exercise pumps through the body the blood which carries food and oxygen to and waste products away from the tissues. He knows that exercise increases metabolism and that heat and energy are produced. He knows that certain chemic changes occur in contracting muscle; that carbon dioxide, sarcolactic acid, and heat are produced, and that their source is probably a protein substance called inogen.

He knows that exercise is necessary. The fact is, however, that very few of our best obstetricians, to say nothing of the general practitioners, realize the importance of exercise in the case of the expectant mother. And furthermore, I have yet to meet the physician who knows how, who prescribes, demonstrates, and who insists upon his nurses and patients carrying out a systematic course of intelligent exercises, especially for pregnant women, the class for whom exercise is probably most beneficial. Medical men as a rule do not understand the therapeutic application of exercise, nor do they realize how much can be accomplished by exercise in many kinds of cases often where drugs are of no use and where everything else fails. Few physicians know enough about the kinds of exercises, games, sports and calisthenics to know their purposes and indications, when they should or should not be recommended. The majority of our profession, for instance, classify golf as an exercise, when as an exercise it is a total failure, though as a recreation it can hardly be excelled. Recreation is none the less important than exercise, but certainly it is very different.

In the study of exercise for the baby I kept carefully tabulated records of one hundred infants for whom I prescribed a systematic and studied course of exercises, beginning when the umbilicus had healed, and which were more or less regularly administered until the babies had ended their second year. I chose cases, of course, that were normal and not afflicted with syphilis. I then compared these records with the records of a hundred such cases taken at random from my books, but upon whom the exercise feature had not been practised, the children being handled in all other respects exactly alike.

From these cases I wish to make the following report: The average weight of the babies so exercised was twenty per cent. more than that of the babies not exercised. Of those exercised, forty-two per cent. had fever and diarrhea at the teething period of the second summer. Of those not exercised seventy-eight per cent. had fever and diarrhea at the corresponding period. Those exercised had also much more strength and solidity of flesh than those not exercised.

Concerning exercise for tubercular patients, I have seen several fairly well advanced patients apparently completely cured by breathing exercises and others, when all other treatment had proved futile. I cite the case of Mr. C———, of Omaha, who ten years ago weighed 141 pounds, and who practically gave up hope because the tubercle bacillus had been demonstrated and his left lung in both lobes was badly involved. He recovered not only the strength and health of the average man, but he has for several years been one of the best American wrestlers at 165 pounds.

As to cardiac disease I wish to cite the case of hypertrophy of my own heart following my second season of football. The condition was so far advanced that the violent pounding pulsations and shaking of the bed due to the exaggerated heart beats prevented in a great degree both sleep and study. Under carefully graduated exercises, particularly wrestling, supplemented only by light diet and the ordinary hygienic principles, the condition disappeared completely in the course of three years. After a continuance of the same exercises and principles for sixteen years my heart has passed many perfect examinations by cardiac specialists.

As to arterio-sclerosis, the profession usually considers this condition a contra-indication to exercise and the so-called Turkish bath, for fear of embolism. I have proved, however, that when those exercises and baths are scientifically and correctly supervised, they

* Read before the American Association of Clinical Research at Philadelphia, Pa., September 23, 1915.

are especially indicated in arterio-sclerotic conditions. In a two-year study of one hundred cases of arterio-sclerosis in all of which the blood pressure was 160 or over, at the beginning, I had no fatality, and at the end of the two years experiment the blood pressure in all of those cases remained at 135 or less as long as the patient continued treatment.

The profession is being constantly besieged by people who want either to put on or take off weight, but the physician's only correct answer is, "there is no harmless drug that will accomplish that purpose." I have not time for details here, but my uniform results in a large number of cases of both kinds prove conclusively that the right kind of exercise, when supplemented by the proper diet and hygiene, will do both without injury or great inconvenience to the patient. I increased one girl, T. A., from 98 to 148 pounds in three years, and one boy, H. H.. beginning at 13, from 110 pounds to 168 in twenty-six months.

As to chronic torpidity of the bowels, of one hundred cases for which I prescribed auto-colonic massage, and certain other exercises, for a period of two years, nine I lost track of, six reported not helped at all, twenty-three were greatly improved, and sixty-two were apparently cured. I think this an excellent result considering the number in which mechanical difficulties may have interfered with success.

As to pregnant women, even our best obstetricians in laying down hygienic rules of the gestation period, do not dwell upon the importance of exercise.

The usual advice is "Walk in the fresh air every day until you begin to feel tired." When the woman returns in a few days with varicosities and edema of the feet the profession says, "Cut out the exercise." Common sense together with the enormous number of cases in which edema and varicosities are exaggerated, if not actually produced, by the usually prescribed exercise, convinces me beyond a doubt that walking as an exercise should never be prescribed for the expectant mother. If walking produces or exaggerates the condition that I have mentioned, certainly it is contra-indicated.

Whether it does or not, it appeals to me as being positively the poorest form of exercise. It brings into play but very few of the muscles of the body when indulged in in the manner necessary for a woman in this condition. It exaggerates the pressure upon the pelvic veins and nerves, sigmoid and bladder. The mechanical obstruction increases constipation and by interfering with the return venous flow causes dilatation of the veins, resulting frequently in hemorrhoids, and varicose veins of the legs. The leakage from the distended veins results in dropsy and the mechanical pressure gives rise to painful muscular cramps. The correct system of exercises for a pregnant woman does not only not produce the undesirable effects named, but constitutes one of the most powerful therapeutic agencies in overcoming these conditions.

Of fifty cases under my care in which swelling of the feet and varicose veins contra-indicated walking, 100 per cent. were markedly improved under systematic calisthenics. Forty-eight of said cases were normal labors without instrumentation or anaesthesia. Forceps were used in one case to deliver a woman weighing 121 pounds of a child weighing twelve pounds and two ounces. The fiftieth case was killed by an accidental gunshot three weeks before delivery.

Twenty cases of albuminuria were carried safely through gestation and labor. I have had one case with a history of having been aborted on two previous occasions by reputable physicians on account of pernicious vomiting. On this occasion she went successfully through gestation and delivery with little more than the usual gastric disturbance. Twenty-one cases which gave the history of instrumental delivery on former occasions were carried successfully through labor without any mechanical assistance. I attribute this fact to better general health and to the greater comparative degree of development and power in the muscles engaged in the mechanism of labor.

As to the exercises themselves, the breathing exercises are of prime importance for the reason that the vital processes of both mother and foetus depend upon oxygenation, and because the mother must furnish the oxygen for both. They should be taken sitting or lying supinely. The other systematic exercises should be taken sitting or on the hands and knees, or lying either in a supine position, or on the side, and consist largely of reaching and twisting movements. A limited number of such exercises when there is present no edema or varicose veins can be taken standing. These exercises should be begun six weeks before pregnancy when possible and continued daily throughout gestation.

MECHANICAL VIBRATION, ITS USES IN MEDICINE.*

By Mary L. H. Arnold Snow, M. D.,
New York.

Mechanical vibration in the field of medicine as a measure of relief for the cure of disease is worthy of that recognition which its physiological actions and therapeutic results indicate. It is neither a passing foible nor a placebo. Mechanical vibration like other therapeutic agencies has a broad field of usefulness occupying a special place in medicine, encroaching on diagnosis, and being particularly adaptable to all selective conditions amenable to massage and spinal stimulation.

As every ailment has a pathological basis which must be eliminated, or whose progress must be arrested in order that there may be a restoration of the normal functional activity of the involved part, it is necessary to consider the physiological effects of mechanical vibration to determine in what pathological conditions it is especially indicated.

According to the technic employed in its use, as variations in speed, length of stroke, degree of pressure—light, moderate, or heavy—it can affect every tissue and organ with varying intensity.

Mechanically it stimulates the circulatory and lymphatic systems and consequently is concerned in metabolic processes as affecting the functional activity of a part by the removal of stasis. Its technical use is therefore indicated in all non-infected inflammatory processes. By technical use, I mean that inflammatory processes must be treated with due care and precision in method with careful selection of the vibratodes employed, using in each instance the one adapted to the particular site or part in question. Regulation of speed according to the condition treated, of stroke according to the site affected, of pressure according to the degree of inflammation present, and the length of time measured by the patient's reactionary powers are all essential to a skillful technic.

Mechanical vibration improves respiration, and hence increases oxygenation. It stimulates exretion and secretion. It induces the removal of extravasations, exudations, and transudations. It assists in breaking up or preventing minor adhesions for which it is particularly

* Read before the American Association of Clinical Research at Philadelphia, Pa., September 24, 1915.

useful after fractures or in joint conditions, its indications for use being limited by an increase of the inflammatory process.

Chemically, mechanical vibration assists in the interchange of oxygen and CO_2 as in the induction of the lung reflex of contraction.

Thermically, it affects the body through vibratory fraction which increases heat elimination and through deep interrupted vibration it acts upon muscles and increases heat production. Cutaneous and vasomotor stimulation affect the storage of heat as contraction of the skin and its blood vessels diminishes the heat evolved, and if they dilate it is increased. Since it is concerned in the regulation of bodily heat, it indirectly affects the immunity of the body.

Physically, mechanical vibration affects respiration and endosmosis of the lymphatics.

Reflexly, it causes changes in related parts through nerve stimulation or inhibition of parts of the cerebrospinal, sympathetic and adreno-thyroid systems.

Its action on the respective systems of the body may be briefly noted as follows. The effects of mechanical vibration on the circulation varies with the method of application and other physical conditions. Many authors—Zander, Bechterew, and Colombo, believe that vibration first causes contraction of the blood vessels with a consequent rise of blood pressure although some believe that a subsequent dilatation with resultant fall of blood pressure may follow.

Reflexly we have found that the blood pressure may be made to rise or fall according to the spinal site selected for the application of the ball vibratode as used for spinal vibratory treatment. It may therefore be used in the treatment of hypertension. In the treatment of splanchnic neurasthenia, a condition characterized by tenderness of the liver, mental depression, accumulations of gas in the bowels, and a splanchnoptosis with a reversal of the normal relation of blood pressure mechanical vibration is a valuable aid. The ball vibratode applied in the intervertebral spaces from the second to the sixth dorsal vertebra, alternately on each side for five minutes gives most gratifying results in establishing a normal relation between the blood pressure when taken with the patient lying and sitting. The underlying cause of the condition must be treated as indicated to maintain the equilibrium established by vibratory treatment.

On the heart, mechanical vibration has a marked stimulatory effect. Vibration directly over the heart by means of the disc vibratode or the application of the ball vibratode in the intervertebral space between the seventh cervical and the first dorsal vertebrae will induce a reffex contraction of the heart and increase its tone hence its use is indicated in myocardial insufficiency, or to revive a fainting subject. The pulse rate may be lowered through interscapular vibratory treatment with the ball vibratode or regulated reflexly through other spinal vibratory applications. Aneurysms are also favorably affected to contract by a two-minute vibratory treatment with the ball vibratode in the intervertebral spaces alternately on each side between the seventh cervical and first dorsal vertebrae.

In the treatment of a cold, and also as Dr. A. B. Hirsh has successfully demonstrated in the treatment of sinusitis, or hay fever spinal vibration is effective. It may be used in the treatment of goitre either by direct applications to the gland, or reflex spinal stimulation probably affecting the blood supply of the thyroid. In the treatment of splenic enlargement when not due to infection it is an indicated agent, as by applying the ball vibratode in the intervertebral spaces alternately on each side of the spine between the first and second, and second and third, lumbar vertebra for ten minutes a reflex splenic contraction is induced.

In its relation to the respiratory tract probably one of the most satisfactory uses of mechanical vibration is in the treatment of asthma. The application of the ball vibratode in the intervertebral spaces between the fourth and fifth cervical vertebrae for ten minutes using moderate pressure induces a reflex lung contraction, clearing up the rales and giving the patient marked relief. Of course, underlying causes must be treated as well to effect a cure.

Mechanical vibratory treatment removes or diminishes pain, tenderness, and stiffness with a resultant relaxation of the involved muscles. Through its circulatory effect it may develop an atrophied muscle or lessen the flaccidity of a relaxed muscle. In many cases exercise combined with vibratory treatment regulates functional cellular activity. They assist in the elimination of waste products and have an effect on the amount of adrenoxidase in the body. The muscle becomes firm, more elastic, and more healthy.

Muscular electro-excitability may be increased by mechanical vibration. Contracted muscles may be made to relax in response to prolonged vibratory treatment. It is therefore indicated in the treatment of wry neck and the contractions present with rheumatoid arthritis.

In the after treatment of fracture, it relieves the oedema and hastens recovery in two-thirds of the usual time.

Through reflex activities induced or by its effect on the blood supply or muscles, it is useful as an auxiliary measure in the treatment of migrain, glaucoma, neuritis, referred pain, chorea, and locomotor ataxia.

Mechanical vibration is most useful in its application to the digestive system in the treatment of constipation either by localized spinal vibratory treatment with the ball vibratode or the application of the disc and ball to the bowels directly, or an associated internal rectal vibratory treatment and enema.

Its employment by the general practitioner as an auxiliary agent in diagnostic work is indicated as it determines:

1. The presence and site of inflammation and pain.
2. The degree of tissue irritability.
3. The presence and degree of muscular spasm.
4. The range of mobility of a joint.
5. The state and degree of efficiency of various reflex functions.

Spinal reflexes elicited by mechanical vibration or any other physical modality are of importance diagnostically and therapeutically.

Spinal vibration with the ball vibratode applied between the seventh cervical and first dorsal vertebrae for a period not over two minutes elicits a reflex contraction of the heart, which according to Abrams is absent if pericardial effusions are present. Vibratory treatment when given between the second and third, and third and fourth dorsal vertebrae usually lowers blood pressure. When such treatment does not, if vibration in the intervertebral spaces alternately on each side between the seventh cervical and first dorsal does, the presence of cardiac weakness associated with high blood pressure is demonstrated.

Vibration is also valuable in the diagnosis of aneurysm as well as for the treatment when used as Abrams uses the concussor. An increase in the transverse dullness at the level of the manubrium above five cm. indicates the presence of dilatation or aneurysm. Vibratory treatment in the intervertebral spaces be-

tween the seventh cervical and first dorsal vertebrae will lessen the area of dullness but when applied in like manner between the ninth, tenth, eleventh, and twelfth dorsal vertebrae will increase the area of dullness and if an aneurysm be present it will aggravate the aneurysmal symptoms.

The long reflex of dilatation is induced by vibration in the intervertebral spaces from the third to the eighth dorsal vertebra. Its absence is an early sign of pulmonary tuberculosis.

The stomach reflex of contraction is elicited by applying the ball vibratode in the intervertebral space from the first to the third lumbar vertebra. By it the association of a growth or sensitive spot in the structure of the stomach may be determined. When an organ is examined, interrupted vibration with the disc vibratode should be used with varying degrees of pressure to be governed by the patient's tolerance. Apply the vibratode gently, but firmly, with gradually increasing pressure to elicit pain if present. A sensitive ovary, gall bladder, pylorus or congested spleen, liver, stomach, or intestines, are revealed by use of vibration with the disc vibratode.

Vibration also discovers the presence of hyperalgesia. The "cutaneous expression of visceral disease" as considered by Head demands attention. These areas "correspond to spinal segments from which the posterior roots take their origin and not to their peripheral distribution. When two areas are centrally connected, pain is referred to that area which is relatively more sensible."

The elicitation of tenderness or pain by the use of the ball vibratode as a means of spinal examination and the disc vibratode for other parts of the body demands a painstaking interpretation. Sometimes, obscure conditions are discovered, as a persistent bilateral interscapular tenderness may suggest tuberculosis, before any marked clinical symptoms are observed. A radiogram confirms the diagnosis. Nerve tenderness may require an analysis, as tenderness found between the sixth and seventh, seventh and eighth, and eighth and ninth dorsal vertebrae on the left side is suggestive of stomach disorder which in turn suggests a radiogram for confirmation.

The scientific application of mechanical vibration to obtain results requires a consideration of its physiological properties, and a working knowledge of anatomy, a close scrutiny of pathological conditions and a selective knowledge as to its adaptability to meet the conditions found, all of which bar its indiscrete use by the laity. Mechanical vibration should be employed to meet a demand, and so applied that the physiological activity of a part will be restored without affecting its integrity, which requires a selective scientific application of its physiological action suited to meet pathological requirements.

If constipation develop in an adult, exclude intestinal neoplasm before treating the condition as functional. Carcinoma of the sigmoid, for example, may exist for some time without any other symptom than constipation until obstruction or perforation suddenly develops. Sigmoidoscopy or bismuth *x*-ray examination will usually locate such a condition. These should be employed, therefore, in cases of recent adult constipation of unknown cause.—*American Journal of Surgery.*

Fibroids of old standing, consisting chiefly of fibrous tissue, are less likely to diminish in size than the more vascular and cellular varieties under the *x*-ray.

Pediatrics

At the 1915 meeting of the American Pediatric Society many topics of interest to general practitioners were discussed. The full report of the proceedings is to be found in the *Archives of Pediatrics* for May. A brief abstract of some of the more important papers is given herewith.

A Preliminary Report on the Pneumonias in Children.

Godfrey R. Pisek, New York, discussed the findings in 1,000 cases of pneumonia in children studied in the wards of the Post Graduate Hospital. From a study of 1,000 cases a mortality of 43.3 per cent. was established. This was probably higher than was obtained in private practice among well-to-do people, but was the average for the mass of city dwellers. Broncho-pneumonia was pre-eminently a disease of the first two years of life, and after the third year was relatively uncommon. Lobar pneumonia was the type of the disease which was present after the third year in practically all cases of pneumonia, if those cases which were frequently secondary to some other condition or those in which the pneumonia occurred as a terminal condition were omitted. Lobar pneumonia *per se* was a common condition in the first and second years of life, being much more frequent than was commonly supposed. The infection which was the etiologic factor in lobar pneumonia was always the pneumococcus, while a broncho-pneumonia might be due to a number of organisms, such as the streptococcus or the influenza bacilli, occurring alone or as a mixed infection. If pneumococci were present in broncho-pneumonia they were usually one of a group of organisms commonly found in the mouth.

The pneumococci might be divided into four general groups, each being made up of many races which were closely related. By the method outlined a pure culture of pneumococcus might be obtained and the group determination completed within twenty-four hours from any given case of pneumonia. The division of the pneumococci into groups was of great importance from the standpoint of treatment, since a serum or vaccine prepared from organisms of one group could not be applied in the treatment of a pneumonia due to organisms of another group. It was hoped that the division of pneumonia into groups would eventually bring about the treatment by means of specific sera or vaccines, thus replacing the symptomatic treatment of to-day. A careful scrutiny of this series of cases failed to reveal any evidence of an epidemic, or even of a house infection.

General Tuberculosis Including the Skin in a Child.

William P. Northrup, New York, reported this case, which occurred in a baby weighing nine pounds at birth. The infant was breast-fed. At the age of four months the child was taken with diarrhea and wasting. It had a cough but no vomiting and no crying. The skin eruption and the *x*-ray enabled him to make the diagnosis of miliary tuberculosis. This was the fourth case of the kind that had come under observation. The other three he had reported. These cases suggested the following deductions: In a case of suspected miliary tuberculosis, a good *x*-ray, next to an autopsy gave the most intimate knowledge of the lesion in a child's lungs. The eruption in miliary tuberculosis furnished a pathognomonic sign for diagnosis. A valuable and almost conclusive point for prognosis was that the skin lesion was almost always an indication that one was dealing with a fatal form of tuberculosis in young children. The histology varied with the acuteness of the invasion. In

cases of acute tuberculosis the vesicles (necroses) were the first revealed lesion. Bacilli were found frequently in the blood and in the eruption. The lesion was probably always embolic. The characteristics of the individual lesions were that they were the size of the rose spot in typhoid fever, were tipped by a tiny vesicle, surrounded sooner or later with a congested hemorrhagic zone followed by the formation of a crust, which, when removed, left a pit. Experience with this eruption was like that with scurvy in infancy, when once seen, the lesion could not be again overlooked.

The Etiological Relationship of Syphilis to Chorea of Sydenham.

Henry Koplik, New York, stated that the investigations into the etiology of Sydenham's chorea had been devoid of any special results. There was clinically an undoubted connection between chorea and endocarditis, and between chorea and rheumatic joint manifestations. Of late there had been an effort to connect chorea in an etiological way with syphilis. On the appearance of salvarsan this remedy had naturally been tried. Arsenic had for decades been a favorite remedy in chorea. What with pushing this drug to the point of toleration by the mouth could be more natural than to apply it in another form—injection into the circulation? Bokai thought it was of great benefit in the treatment of chorea especially in cutting short the duration of the affection. From this to the surmise that there was a connection between chorea and syphilis was but a step.

After reviewing the reports of the various investigators who seemed to have observed this association, Dr. Koplik said he had endeavored to enlighten himself as to the relationship between chorea and syphilis. He took 10 successive cases of chorea in his hospital service at the Mount Sinai Hospital. In 5 of these cases there was an endocarditis on admission to the hospital, with an evident lesion of the valves; in 3 cases there was a distinct history of rheumatism; in 10 cases a Wassermann test was made, and in 8 the result was satisfactorily negative. In 2 the reaction failed, but was not positive. In all the cases there was absolutely no stigmata of syphilis, hereditary or otherwise. There was no reason why, had a sufficiently large number of cases been subjected to the Wassermann test, they might not have met cases in which syphilis was present. For a child affected with syphilis might contract chorea just as readily as another. The presence of syphilis might be an accidental find. The attempt of the French writers to accept a luetic basis for chorea, on the ground that the salvarsan treatment was of special effect in chorea, was also to the essayist not convincing. For the benefit of the service and of these choreic children, Dr. Koplik determined to test the action of salvarsan in chorea minor. Nine cases were injected with doses of varying size. In 7 of the cases thus injected no striking amelioration of the symptoms such as had been reported was observed. Even after a second and third injection the chorea continued to run its accustomed course. In another case nephritis resulted and the patient was ill with chorea for some weeks.

The administration of salvarsan, requiring a certain amount of apparatus, was not exactly applicable as a therapeutic measure in chorea. Nor could the drug be said to exert such a striking improvement as to encourage a continuance of its use; neither did it prevent a relapse. In fact, there was nothing in the after affects to warrant an assumption of a possible syphilitic or parasyphilitic influence, as a causative factor in the chorea of Sydenham. In the opinion of the essayist, they had not in salvarsan an agent of any value above what had hitherto been in vogue in the treatment of chorea minor, nor were they warranted in tracing any relationship between chorea and hereditary or acquired syphilis.

The Value of the X-ray in Intrathoracic Lesions in Children.

Rowland G. Freeman, New York, stated that disappointment in the use of this means of diagnosis might result from expecting too much from it. Alone it was generally of little value, but, like other evidence, in combination with clinical history and physical signs, it might be conclusive. Auscultation in determining the character of intrathoracic lesions was of materially less value than auscultation in combination with percussion, and auscultation and percussion aided by a good *x*-ray plate might fix a diagnosis that might otherwise remain obscure, for the *x*-ray would show lesions in the chest of which one could obtain no knowledge by any of the means of physical diagnosis. *X*-rays of the abdomen in children were frequently disappointing. Radiographs of the chest, however, in children were of material aid in diagnosis. The *x*-ray was probably of most value in making the diagnosis of miliary tuberculosis; often it was of value in determining a pneumonia of which one got no physical signs; in making a differential diagnosis between empyema and pneumonia; or in corroborating a diagnosis of diaphragmatic hernia, while in lesions of the heart it furnished reliable information as to enlargement, modification of the shape of the heart, in dilatation, or the presence of exudate, and it would often differentiate plastic exudate from fluid. Clear fluid gave no shadow while pus formed a shadow. The presence of air in the chest was also well shown by the *x*-ray and if there occurrred a combination of air and pus one got a pus level which was very characteristic. The question often arose whether a murmur heard over the heart was a so-called hemic murmur or a murmur due to a damaged valve in the heart. In such cases an *x*-ray picture gave one an excellent basis for an opinion as to the origin of the murmur.

In diseases of the heart in children the *x*-ray gave a valuable indication of the amount of damage to the heart by the size and shape of the heart shadow and successive pictures provided one of the best means for the control of exercise in these cases. For such control the temperature and pulse rate were of great value, but the *x*-ray picture would occasionally change their method of treatment to the advantage of the patient. Another condition well shown by the *x*-ray was the enlargement of the thymus gland, which gave a broad shadow above the heart. Enlargement of the bronchial and mediastinal lymph nodes might also be brought out by the *x*-ray. The *x*-ray had also given corroboration of a diagnosis of diaphragmatic hernia. In conclusion, Dr. Freeman stated that the *x*-ray furnished most important means in reaching a definite diagnosis of intrathoracic lesions. It should not be neglected in any obscure case. It was particularly adapted to children, as one could get a better picture of a child usually than of an adult, and because children even when sick could be carried to an *x*-ray laboratory.

A Contribution to Ductless Gland Therapy.

Royal Storrs Haynes, New York, related the history of an abnormal child whose case was of particular interest in demonstrating the certain activities of the pars intermedia of the pituitary gland. This patient was brought to the Babies' Hospital September 1, 1905, at the age of three years and eight months, at which time a diagnosis of cretinism was made. The child was put

on thyroid in small doses. She gained rapidly and steadily in weight and height and intelligence. At the end of two years she was bright and intelligent, with a closed fontanel and a not greatly protuberant abdomen. Enuresis was noted at the end of this period. Shortly after this it was observed that she was not as bright and the dose of thyroid was increased. At the age of eight years she came directly under the charge of an assistant in the clinic, who thought she needed more thyroid and increased the dose accordingly. She had at least 10 grains a day during the entire year of 1912. This increase of thyroid was not productive of mental improvement and did result in a loss in weight. The child became nervous, irritable, of poor mentality, and wet the bed every night.

In 1913 she came under Haynes' care, at which time she was a large child, though below the average weight. She had an excessive appetite and was excessively nervous, having a marked tremor. It was apparent that she was suffering from too much thyroid. The drug was omitted for a time with advantage to the patient. She received no thyroid during the spring and summer of 1913, during which time she improved greatly, both mentally and physically. She seemed remarkably normal in every way, except that she showed some of her cretinism in her shortness, her lordosis, and her prominent abdomen. In September she had an attack of poor appetite and grayness, which disappeared under treatment with rhubarb and soda without thyroid. Another attempt to give thyroid drew the attention of the essayist to the necessity of having absolutely fresh gland and immediate dessication. During the latter part of 1912 it seemed that some other agency was at work or released by the withdrawal of the thyroid, because the patient's weight increased so rapidly and her general bigness, although her height had not. Her face was heavy, her fingers blunt, and she looked old and sullen. The possibility of pituitary gland involvement suggested itself and a radiograph seemed to show that the sella turcica was enlarged. By mistake, when they tested her tolerance for glucose, she received 250 grams instead of 150. Yet she retained it.

Acting on the suggestion that an enlarged sella meant an enlarged pituitary, while the increased tolerance for glucose meant a deficient pars intermedia, they concluded that there was a hyperplasia of the pars anterior, causing enlargement of the face, hands and feet, and that this by pressure on the pars intermedia or its blood supply caused it to become deficient. Acting on this, a preparation of pars intermedia was obtainel in capsule form, each capsule being equivalent to 150 pounds of live bullock and the preparation being absolutely fresh. After taking the capsule for two weeks it was noted that her expression was brighter, as though something had been lifted from her countenance; her mouth was more closely shut, there was an increased smoothness of the skin and it was considerably thinned. In a month her face had lost its vacant stare and her skin was improved. The capsules were continued and by the following July there was a distinct change in her facial expression and her skin. Her fingers, which had been blunt, had become tapering; her hips were slender and shapely, and her lower extremities straighter. The skin was soft and the hair oily. Secondary sexual development was taking place. This was not directly attributed to the therapy, but to the effect of disturbance of the pituitary upon the interstitial cells of the ovary. The pituitary had been omitted and then resumed at different times up to the present. The patient did not now appear to be an abnormal child, only a rather heavy, stocky one, very good-natured, and not sensitive to pain. It seemed evident in this case that, assuming the deficiency of thyroid as evidenced by her condition when she first came under treatment, there was also an affection of the pituitary, which partook of the nature of a deficiency of the pars intermedia.

As to whether the pituitary had always been at fault, or whether the overdosing of thyroid had affected it or the withdrawal of thyroid had allowed it to assume an activity, were subjects of speculation. However, the pars intermedia therapy seemed to have been productive of a striking change.

Homogenized Olive Oil and Fat-free Milk Mixtures in Cases of Difficult Feeding.

Maynard Ladd, Boston, said that in a paper read before the New England Pediatric Society in February, 1915, he had called attention to the possible application of the principle of homogenization of liquids of different densities to the modified-milk mixtures in infant feedings. At that time he reported results obtained by replacing cow's milk with olive oil, the emulsion being produced by the homogenizing machine invented by Gulin, of Paris. The homogenization was brought about by a powerful pump which forced the mixture through a finely ground agate valve against great pressure. After describing the process more in detail, Ladd stated that the chemical composition of the milk was in no wise changed by the process, but in cases of milk and cream mixtures the physical condition was so changed that the fat could no longer be separated by the usual cream separators. In making the Babcock fat test, more acid must be used and centrifugal action continued for a longer time. The taste of the milk was decidedly improved by this process, particularly that of pasteurized milk. As the process prevented the separation of the fat, homogenized creams could readily be pasteurized. Disturbances of emulsion brought about by rising temperature and transportation were prevented by this process. If all these things were true the process would theoretically yield a more digestible milk mixture. This milk had been used in Fariot's "Gout de Lait de Belleville" successfully and he claimed that it was taken as successfully as breast milk.

When rennin was added to the homogenized milk, the curd which resulted was a homogeneous flaky paste, resembling closely the curd of human milk. The most interesting application of this principle of homogenization was in connection with the fat constituent of milk modifications, especially in so-called cases of fat intolerance. It was a question whether it was the fat *per se* which caused this interesting symptom-complex or simply the peculiar quality or reaction of some part of the fat of cow's milk. This question had led him to experiment with vegetable oils, and fats of other animals, such as lard and cod-liver oil. With the homogenizing machine they had now the opportunity of combining such oils and fats with milk or milk and other ingredients. If they could separate in a pure state and recombine into a homogeneous mixture the necessary food elements for an infant they had advanced to an interesting stage of experimentation to determine some of the possible primary causes which started up the train of symptoms leading to the digestive explosions so often seen in the artificially-fed infant. It was possible, for instance, by this method to combine an almost pure olein, or palmatin, or stearin, with fat-free skimmed milk and so eliminate almost entirely the influence of the various fats of cow's milk. They might combine a vegetable fat with precipitated casein or a fat-free lactic acid milk and test its value in acute diarrhea and other conditions in which the ordinary fats of milk were not well tolerated.

Ladd related the histories of several cases in which he had tried olive oil in a fat-free lactic acid milk. In two other cases he had used 1.5 olive oil in a malt-soup mixture. The results justified the hope that such cases could be given a food of higher caloric value by this method, with less disturbance of nutrition and greater conservation of strength than by the methods they were now using. If they were to fairly test the application of the olive-oil malt-soup mixture they should select their cases from those that had been carefully fed in the past and failed to respond. The economic aspect of olive oil was a matter of importance, if it should be found that they could combine this with fat-free milk. Dr. Ladd reported a number of cases fed on mixtures of olive oil, maltose, protein, lime water, barley starch in percentages suited to the individual cases in which the results were very satisfactory and which warranted the hope that further investigation would confirm the promise held out by this method of modifying milk.

Tetanus Cured by Subcutaneous Injections of Antitetanic Serum.

J. Comby (*Brit. Jour. Child. Dis.*, Jan., 1915) says that although the preventive action of subcutaneous injections of antitetanic serum in tetanus is now taken for granted, up to the present the curative action, once the disease has developed, has been of considerable doubt. The author presents three cases: (1) boy, aged eleven years, wound of great toe. Tetanus nineteen days later, subcutaneous injections of antitetanic serum, 200 c.c. in eight days, recovery; (2) boy, aged thirteen years, tetanus following wound in thigh by a fragment of wood, recovery after five subcutaneous injections of antitetanic serum (50 c.c.); (3) boy, aged twelve years, tetanus following wounds of the knee, subcutaneous injections of 40 c.c. of antitetanic serum, recovery. It should be noted that in all these cases the incubation period was from eighteen to twenty days. It seems that tetanus, which rapidly follows infection of the wound, is more virulent than that of later onset. The duration of the incubation period should, therefore, be taken into account in forming a prognosis. With a long incubation period the course of the disease is long and the prognosis good; with a short incubation the course is rapid and the prognosis is almost always fatal.—(*Arch. Ped.*)

Meningism in Scarlatina and Scarlatinal Uremia.

Pierre Mauriac and P. Philip (*Ann. de Méd et Chir. Inf.*, October, 1914) discuss the condition seen in scarlatina when the symptoms are similar to meningitis, but in which the duration of the condition is comparatively short, and recovery rapid. They ask whether we should consider this a true meningitis or no. This condition also occurs in the uremia of scarlatina. Weil reports such a case in a soldier who, in the course of scarlatina, presented symptoms that led to the diagnosis of the cerebrospinal meningitis; the cerebrospinal fluid showed many lymphocytes and the pressure was increased. Still at the end of a few days the symptoms disappeared. Again these meningeal states in scarlatina end in death. The authors conclude that in the presence of a scarlatina we should always be prepared for meningeal complications.

When there are no complications in ears and nose, and no uremia, simple meningeal reaction without a true meningitis will explain the condition. But on this meningeal condition in weak children may be grafted all sorts of other infections, which explain acute meningitis in the course of scarlatina. If uremia occurs, the meningeal symptoms may be due to intoxication and the prognosis depends on the retention of nitrogen. But when convulsive symptoms appear suddenly with a high temperature and meningeal symptoms we may expect an acute infection added to the uremic intoxication acting on the cerebro-spinal axis.—(*Am. Jour. Obst.*)

Treatment of Diarrhea with Charcoal.

Paul Ravaut recommends a method of giving charcoal for diarrhea in a paste, which he has been using at the front. The charcoal is obtained by extinguishing the embers of glowing wood with water and reducing them to powder in a mortar.

Powdered charcoal - -	12 tablespoonfuls
Powdered bismuth - -	4 "
Paregoric - - -	1 "
Syrup - - - -	q.s. to make a paste

From one to three teaspoonfuls of this are given daily. The paste should be kept in a pot or tin box.—(*Journ. des Practiciens*, April 24, 1915.)

X-ray Treatment of Ringworm.

W. C. Oram (*Liverpool Med. Chir. Jour.*, Vol. XXXIV, p. 314) says that the ringworm fungus lies in the root of the hair, and the hair root lies in the follicle deeply embedded in the skin, where no remedial agent can reach it. The only way to bring about a speedy cure is, therefore, to remove the hair and with it the disease, for it is probable that no hair which has once become infected can ever become free from the disease. By the administration of a carefully measured dose of rays, an area of the head can be rendered absolutely bald, all the hair, infected or otherwise, falling out after an interval of from fourteen to twenty-one days after the exposure, leaving a perfectly healthy scalp without redness or soreness.

A year ago an *x*-ray clinic was instituted by the Education Committee of the Liverpool Corporation, and during the past year, 150 children have received treatment. During the period from August to December last year, 42 children came for treatment; 35 of these were cured at the first exposure, i. e., 85 per cent., and the average time which elapsed between the time of their first attendance and their being certified as free from ringworm and able to attend school was just under four weeks. The other 15 per cent. had to receive a second treatment, and the average time for these between their first attendance and their cure was twelve weeks. One child developed an eczema of the scalp outside the area treated. Otherwise all cases were cured within the three months' period.—(*Am. Jour. Obst.*)

A New Contrast Stain for B. Diphtheriae.

Dr. G. McF. Mood has perfected a method by which methylene blue is converted by oxidation into methylene red within polar granules of this bacillus during the process of staining. The stain as perfected is as follows:

"Sat. Alcoholic Sol. Methlyene-blue; (Koch for Bact.) 1 part; hydrogen peroxide 9 parts."

The stain may be kept in a well-stoppered bottle for several weeks. Upon its application there accurs a rise of small gas bubbles and as soon as this ceases (30 seconds to three minutes) the specimen is sufficiently stained, and may be dried either in the air or with the application of a small amount of heat. The bodies of the bacteria stain a pigeon-egg blue, while the polar granules are bright red. The results obtained by using this stain in over 600 specimens have been found to check exactly with the Loeffler and Neisser stains. The

contrast colors are easily seen when artificial light is employed; and specimens will not overstain even if left for a half hour. The stain is not applicable to smears taken directly from the throat as the granules fail to stain under these conditions. After about eight hours' incubation at 37.5 degrees C. upon Loeffler blood serum mixture the granules begin to appear and organisms which have been incubated for sixteen or eighteen hours give the optimum staining reaction.—(*Southern Medical Jour.*, June.)

Goitre in Children.

C. G. Buford, of Chicago, states that simple goitre frequently occurs among children in Chicago, and is associated with a definite symptom-complex, pointing to a low state of health. Goitre appears in certain districts, usually where the drinking water is sewage infected, the bacteria or their toxins acting as causal factors in the disease. Three classes of cases are differentiated: (1) goitre in infants under twelve months of age. These include cretins (ninety per cent.) and a few cases in which the enlargement, present at birth, disappeared within two weeks. Malnutrition is usually present in the mothers of these latter. (2) Goitre in childhood from one year to adolescence. These cases are of frequent occurrence with the ordinary constitutional symptoms met with in adults. The swelling usually affects the right lower pole of the thyroid and is adenomatous. If, as usual, constitutional symptoms are present, the mass should be removed. (3) Adolescent goitre. Usually these cases show diffuse bilateral enlargement with mild hyperthyroidism. Recovery usually occurs, but the type with symptoms of thyroid excess is very resistant. The treatment in Class 1 is reserved for the cretins. with thyroid extract. In Class 2 attention must be directed especially to the drinking water and to various local infections. Thyroid extract is useful. Operation is indicated where there is a definite encapsuled adenoma. In Class 3 rest is essential.—(*Surg. Gyn. Obst.*, No. 1, 1915.)

Lactic Acid in the Urine in Cyclic Vomiting of Childhood.

F. P. Underhill and H. M. Steele report a case of cyclic vomiting, showing one feature hitherto unrecognized, namely, the presence of lactic acid in the urine. The significance of lactic acid in the urine is not well understood, although its presence in the urine in eclampsia, pernicious vomiting of pregnancy, phosphorus poisoning, etc., is well known and its appearance may probably be taken as an indication of disturbed carbohydrate metabolism either induced by the pathological state itself or as a result of an accompanying inanition. Its meaning with respect to the etiology of recurrent vomiting of childhood must be left, therefore, for future investigation.—(*Am. Jour. Dis. Child.*)

Infectious Affections of the Urinary Organs in Infants.

H. L. Kowitz (*Münch. med. Woch.*, July, 1914) says that pyelonephritis in the infant is generally diagnosed cystitis, and hence is believed to be of ascending origin. Because of this mistaken diagnosis its occurrence is considered much rarer than it in reality is. The author believes it to be of hematogenous origin, and hence a descending infection, generally caused by the bacillus coli, or by the streptococcus in the blood.

Between the middle of August and the end of December, 1913, the author treated seventeen boys and twenty-three girls with this affection. The pyelocystitis is generally preceded by gastrointestinal symptoms for several months. The largest number of cases occurred in July, the smallest in winter, when intestinal troubles are least frequent. Escherich found in pure culture the bacillus coli oftenest; also the paracolon bacillus, and bacillus lactis aerogenes. In children with eczema or furunculosis the author found staphylococci, in three cases there were mixed infections of bacillus coli with saprophytes, with streptococci and staphylococci. At first there was bacteriuria with albuminuria, and later casts and epithelium.—(*Am. Jour. Obst.*)

Early Pulmonary Tuberculosis in Children.

K. Fraser reports on 300 cases of pulmonary tuberculosis among school children attending elementary schools in the County of Cumberland, England. Out of 29,750 elementary school children in Cumberland County there were 296 cases of pulmonary tuberculosis.

He found that the commencement of school life has a prejudicial effect on children predisposed to pulmonary tuberculosis; that inadequate increase of weight is very suspicious, and that weight and nutrition should not be considered independently; that defective nutrition is probably the earliest indication of a tuberculous infection before any recognizable physical signs are present; that night sweating is only significant when the sweats are heavy and characteristic; that a persistent, hard, dry cough is the most suspicious type of cough; that in nearly every case one or other apex is affected, and that the right apex is most often the first clinically recognizable focus; that dullness is almost invariably present over the affected lung; that inequality of the breath sounds is a very early indication of trouble; that the duration of this is short, and that it is usually succeeded by bronchial breathing, which is nearly always present and which remains indefinitely; that friction and fine crepitations are the most significant accompaniments when persistent, and especially if localized, are suspicious; that spontaneous improvement is more common in girls than in boys; that from the sixth year the tendency to spontaneous improvement increases year by year; and that children in rural areas show a very much greater tendency to spontaneous improvement than children in urban areas.—(*Brit. Jour. Tuberculosis*, No. I, 1915.)

Prevention of Vulvo-Vaginitis in Children.

Taussig reports on sixty-six cases of vulvo-vaginitis in girls of from three weeks to twelve years of age. He thinks that the most frequent source of infection is from child to child, through the intermediary of the school lavatory seat. He recommends, as special precautions for its prevention, (1) the instillation of a drop of two per cent. silver nitrate solution into the *vestibulum vaginae* of all new-born girls whose mothers show evidence of gonorrhea, though probably not more than five per cent. of the patients are infected at birth; (2) making vaginitis in children a notifiable disease; (3) instruction of parents of infected children as to the best means of limiting infection, by the use of separate towels, bedding, etc., and by special care in the use of the lavatory; (4) investigation as to the probable origin of infection, in order to prevent infection in other children; (5) the use of a special U-shaped lavatory seat with a bowl not above eight inches in height wherever children congregate, viz., in schools, picnic grounds, etc.—(*Am. Jour.-Dis. Child.*)

It should be impressed upon women that the prognosis after hysterectomy for carcinoma confined to the body of the uterus is usually good.—*American Journal of Surgery.*

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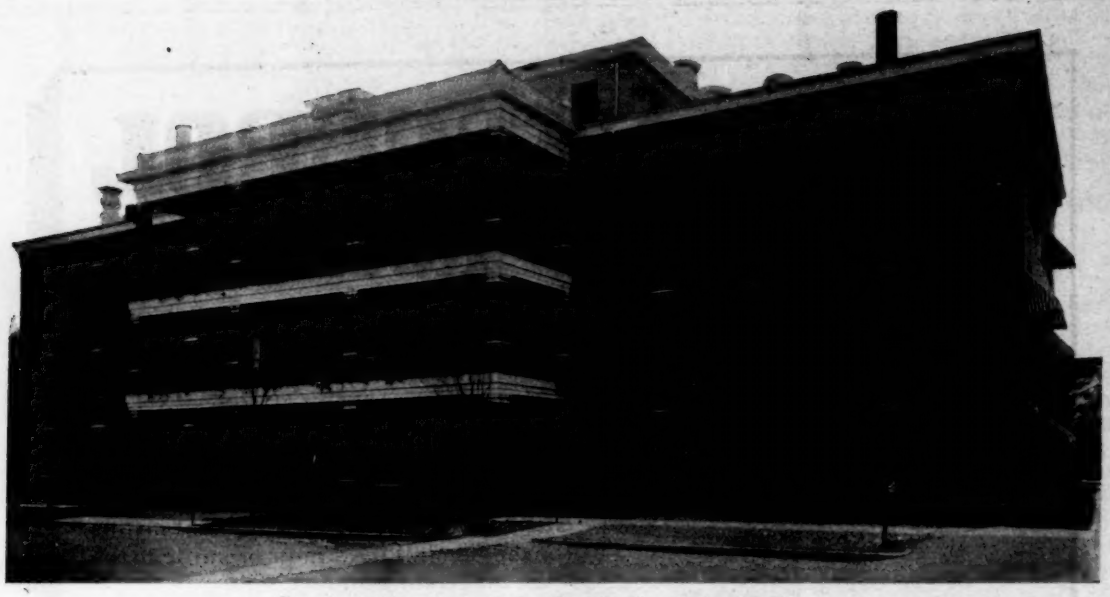

Surgical Hospital of the Battle Creek Sanitarium.

Years of planning and many months of actual work have at length given the Battle Creek Sanitarium a surgical hospital which may fairly be said to speak the last word in science, comfort, convenience and efficiency. Not only are the ideas growing out of long experience here embodied in this new structure, but they have been supplemented by study of hospitals in other cities and lands. Every invention, every device, every arrangement that would contribute to the care and healing of surgical cases have been installed here. The building is at the corner of Lincoln and Aldrich streets, about two blocks from the main building, in a quiet neighborhood. A beautiful park is being laid out in the adjoining region. Indeed, the visitor will immediately be struck with the emphasis laid on the aesthetic and the psychologic. Bright flowers blossom in the porch boxes and around the lawns; palms and ferns are scattered through the lobbies and halls and cut flowers are displayed in profusion throughout the offices and patients' rooms. The open spaces are wide and roomy; everything is spick and span with a shining newness and bright cleanness that is both cheerful to the eye and comforting to the understanding as indicating a permanent injunction against the lodgment of disease germs.

The building is four stories in height, fireproof and of brick and cement. There are seven large porches, four of them with southern exposure. One is enclosed in glass for use in inclement weather.

The administrative offices are on the first and second floors. The suite for this purpose consists of a waiting room, a preparation room for the staff, a surgeon's dressing room, a sterilizing room, store rooms, anesthetic room, operating rooms and bandaging room. Three of the rooms have the walls and ceilings covered with vitrolite, a kind of glass, while other rooms have wainscoting of the same material. Throughout the building, the floors are of a smooth composition of tile, rounded at the edges so as to leave no corners.

The operating table is a wonderful piece of mechanism, adjustable in a score of ways. At first you are amazed to learn that it cost as much as a moderate-priced automobile, but when you see the range of its activity, you can understand why it is so expensive. The lighting system over this table also strikes the visitor as wonderful. Eight lights backed by parabolic mirrors cast their beams from a big metal ring suspended above, and the arrangement is such that no shadow is cast. Elaborate machinery washes all the air that is admitted to the operating room. Furthermore, this air is cooled in summer and heated in winter to the desired temperature. Dazzling white is the color throughout the operating suite.

On the fourth floor are the kitchen, dining room, class rooms, and elaborate machinery for distilling water, drying blankets and cloths, incinerating soiled dressings, refrigeration and for treating the air to be sent to the operating suite. The cold storage room shows a temperature of 38 degrees. Theoretically, it should be at freezing, but the frequent opening of the door, diminishes the figure a few points.

A device which is appreciated by helpers and patients is that for summoning an attendant. Each bed has a signal-cord. When the button is pressed, three electric lights are turned on—one at the dial in the lobby, one over the patient's door in the hall and the third in the room by the door. Thus the nurse on duty sees that he is wanted in a certain room; the light over the door makes it certain that he will enter the right room, even if he forgot the number indicated on the dial. By the third light, which is a small one, covered with a thick red globe, the patient knows that the apparatus is working and that his summons will be obeyed. When the attendant enters the room, he presses a button and all three lights are extinguished. These lights can be put out in no other way and in no other place. Each room is also provided with a telephone and with running water, hot and cold. Some of them also have bathrooms. The beds are adjustable.

On the third floor are two rooms for *x*-ray examinations and treatments. There is also a waiting room for visiting physicians, for use between operations. The elevator runs by hydraulic power, and is of the plunger type, so as to be absolutely safe. In the heating system, the steam enters the top of the radiators and escapes from the bottom, thus preventing noise.

The hospital contains fifty beds. These are now filled.